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July 20, 2007
Volume 29 Number 29
www.processor.com

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Structuring Storage

Dissecting The Storage Architectures Of SAN, NAS & DAS

by Christian Perry

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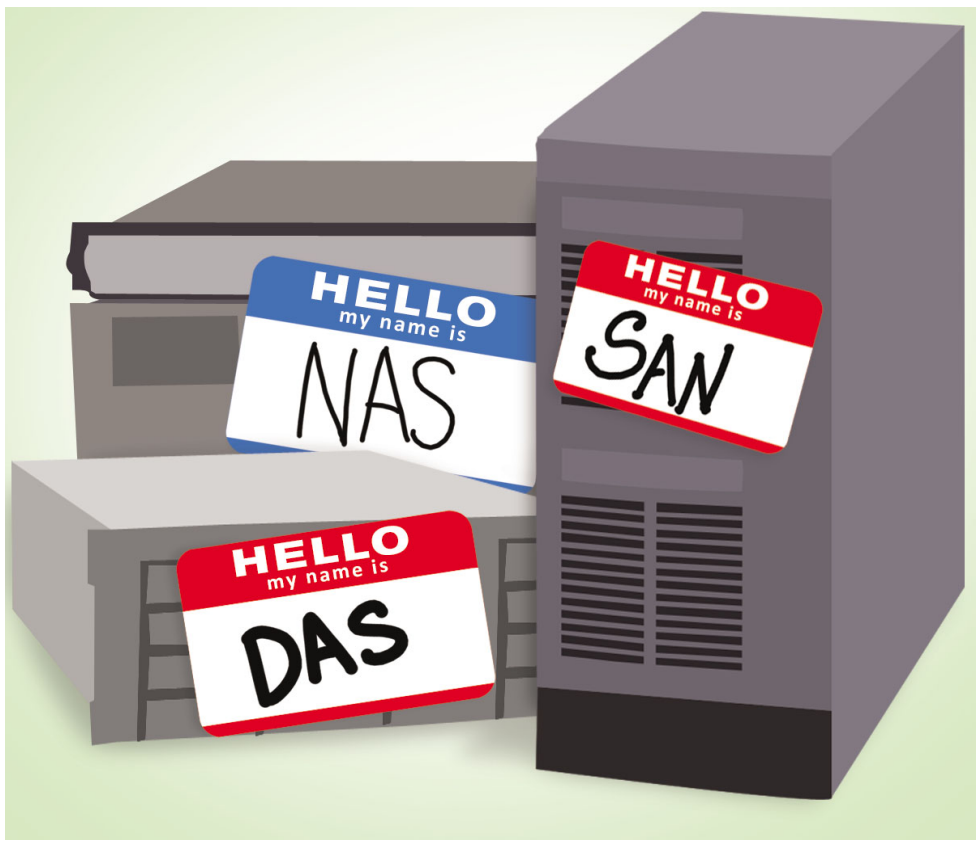
With manufacturers continuing to shoehorn enterprise-class storage products into the small to midsized enterprise space, companies have more choices than ever when determining how to structure their storage architectures. But their research won't come without confusion because three of today's top storage methods entail a wealth of pros and cons that can leave companies indefinitely teetering on indecision.

SANs (storage-area networks), NAS (network-attached storage), and DAS (direct-attached storage) have all made plays to be the top gun in the SME space, but for most smaller enterprises, only one represents the perfect choice. Finding that perfect choice can mean the difference between an organized, efficient, cost-efficient storage architecture and an unwieldy, money-draining pit.

SAN

SANs, which use attached remote storage devices that appear as local devices to the operating system, are generally found in the realm of larger enterprises, due to complexity and cost restrictions. According to Christopher Poelker, co-author of "SAN for Dummies" and vice president of enterprise solutions for FalconStor (www.falconstor.com), SANs emerged as a result of data center managers needing a way to centralize block-based data resources to ease backup and recovery and increase utilization.



"A storage-area network enables access to a central pool of storage resources that can be purchased separate from servers and allocated and shared as required, over a very fast optical network," Poelker says. "The ability to leverage a central pool of intelligent storage to simplify data

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Is It Time To Replace Your IPsec VPN?

An SSL VPN Offers A New Model Of Secure Access For Remote Users

by Will Kelly

• • •

IPsec VPNs have long done the heavy duty of securing remote access between corporate offices. This is fine and good with communications between your corporate offices and if you control the laptops accessing your network. However, this model falls short in today's business landscape for small to midsized enterprises; partners, vendors, SOHO, and remote workers now require access to the corporate enterprise.

Benefits Of An SSL VPN

The standard IPsec VPN security model requires that your SME control the device as well as the IPsec VPN security software. Bringing in an SSL VPN enables you to open up your enterprise on a granular level to third parties and noncompany-owned/controlled PCs and even mobile devices, such as smartphones, through a browser vs. a proprietary IPsec client.

Endpoint security is a key advantage of an SSL VPN.

Endpoint security is a key advantage of an SSL VPN. An SSL VPN scans the access device prior to accessing the corporate network, regardless of whether it is an employee accessing the network from a company laptop or his personal PC that may or may not have all the requisite antivirus, spyware, and firewall protection. An SSL VPN then drops policies and checks the hard drive of the requesting device for proper

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SAN, NAS & DAS

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Resource-stressed SMEs looking for an easier VPN solution should spend the time to analyze an SSL VPN solution because it means no deployment of clients, a scalable VPN solution, and reduced management costs.

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Components such as a cartridge memory chip can potentially offer an abundant amount of information about the history and condition of cartridges and tape.

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Although growth is good, rapid expansion in the data center presents a number of challenges few businesses consider until they surpass the limiting factors of space, power, and cooling.

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■ **Electro Standards** announced the Model 4149 Fiber-to-RS485/422/232 Interface Converter, which comes in encased and board models. ■ **iXsystems** says its new Colossus SAN RAID Storage Device can support up to 48TB of current-gen SATA capacity in a 4U rack space. ■ **Kyocera Mita America** announced KYOcapture Express, a new addition to its suite of document management solutions. ■ **Minicom Advanced Systems** released Smart 116IP, a new digital KVM switch with a simple interface designed for a single user to gain secure remote or local BIOS level access to up to 16 servers. ■ **Secure Computing's** SafeWord MobilePass allows users to access VPNs, Citrix, and Outlook along with many other applications, through one-time passcodes. ■ **Trend Micro** added several new features to its InterScan Gateway Security Appliance. ■ **Websense** launched Websense Express software to manage business Internet use, protect from Web security threats, and improve bandwidth.

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1. **What is the size of your company (how many employees)?**
   - ☐ Less than 10
   - ☐ 10 to 99
   - ☐ 100 to 199
   - ☐ 200 to 499
   - ☐ 500 to 999
   - ☐ 1,000+

2. **How often do you purchase computer hardware/software?**
   - ☐ Weekly
   - ☐ Bi-weekly
   - ☐ Monthly
   - ☐ Quarterly
   - ☐ Annually
   - ☐ No Involvement

3. **What is your annual computer hardware/ software purchasing budget?**
   - ☐ $0 to $9,999
   - ☐ $10,000 to $24,999
   - ☐ $25,000 to $49,999
   - ☐ $50,000 to $99,999
   - ☐ $100,000 to $249,999
   - ☐ $250,000 to $499,999
   - ☐ $500,000 to $999,000
   - ☐ $1,000,000+

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PHYSICAL INFRASTRUCTURE JULY 20, 2007

Alert-A-Rack Safeguards Rack-Based Gear

Information Support Concepts Product Detects Heat Or Humidity Buildup

ENVIRONMENTAL MONITORING has been around for quite some time. But adoption numbers are growing rapidly as organizations seek a low-cost way to ensure high-dollar equipment isn't operating in conditions that could lead to catastrophic failure or drastically shorten its useful life.

Shown with optional components

Typically, IT installs sensors in the computer room, hooks up the cables, installs software, and begins gathering environmental data. ISC (Information Support Concepts) has simplified the process by combining server racks with monitors incorporated into the rack. The Alert-A-Rack Server Rack System gives advanced warnings via email when heat and humidity exceed predetermined parameters.

"The Alert-A-Rack provides the support and organization characteristics of a quality server rack cabinet combined with the ability to monitor two environmental factors inside the cabinet," says Jack Burlin, product manager at ISC.

Monitoring at the room level is not enough. While the temperature in the room may be fine—75 degrees Fahrenheit or cooler—one or two racks might be as high as 95 degrees Fahrenheit. If this remains undetected for a few hours, it's likely all that gear will have to be replaced.

The smart server rack system has an extruded aluminum frame with adjustable rack rails that can support rack servers from multiple vendors. The cabinet is designed to maximize airflow and has locking doors.

The two types of sensors included—heat and humidity— represent the vast majority of potential issues that IT may experience. Alert-A-Rack guards against conditions such as AC failure, dampness due to flooding, a server overheating, or leakage from sprinklers. If any of these conditions are detected, emails are sent to IT.

"Monitoring heat and humidity in individual server racks and cabinets has been an expensive proposition," says Burlin. "It was important to us that we develop a quality server rack cabinet that addressed correct airflow, proper sizing for servers, and an environmental monitoring system at an affordable price."

Information Support Concepts Alert-A-Rack

From $1,012.25 to $1,171.75, depending on rack size (22U, 36U, and 42U available)

Combines a quality server rack cabinet with two environmental monitors inside the cabinet

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NETWORKING & VPN JULY 20, 2007

CA Service Quality Management Keeps You On Track

Closed-Loop System Detects Incidents Before SLAs Are Violated

DETERMINING EXACTLY how specific IT infrastructure elements actually drive business performance is easier said than done. For example, how do page load times in automated-only applications actually affect e-business strategy? Without clear, visible metrics, it is extremely difficult for business and IT managers to ascertain the exact nature of this relationship.

CA's new Service Quality Management (or SQM) product is designed to ensure IT is meeting business objectives by complying with service level agreements and aligning with best practices, such as ITIL.

SQM integrates a number of CA product offerings, including the CA Wily Customer Experience Manager, CA Wily Introscope, CA Service Metric Analysis, and CA Service Desk. These products perform a variety of tasks, such as measuring the performance of automated, Web-based applications and end-user experience (Wily Customer Experience Manager and Wily Introscope); service desk automation (Service Desk); and tracking IT metrics, service level objectives, and performance indicators (Service Metric Analysis).

SQM's key deliverable is the measurement of actual, real-time performance against the performance promised in SLAs. That way, admins can zero in on problem areas and proceed with implementing the fixes necessary to deliver the performance required by business objectives. Variables monitored and measured include applications, transactions, or groups of users.

SQM is designed to operate as a closed-loop feedback system that begins with the developing, tracking, and reporting of SLAs and also incorporates the development of policies—within Service Metric Analysis—that allow business and IT admins to determine which SLA violations are critical. Criticality is based on the business impact of an SLA violation. For example, a page generated by a Web-based application taking longer to load than a predetermined threshold value may constitute an SLA violation that requires attention.

SQM automatically creates an incident ticket in Service Desk that includes diagnostic information generated by Introscope. SQM also supports ITIL v3 best practices, such as Business Service Management.

CA Service Quality Management

Available as a free download for current CA and CA-Wily customers; customers are required to have valid licenses for the component CA/CA-Wily products they wish to integrate with SQM

A way to peer into application performance and figure out exactly how apps impact the business

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STORAGE JULY 20, 2007

Plasmon Tailors Archiving Appliance To Smaller Healthcare Providers

Archive Appliance Express Specializes In Storing Medical Images

SMALLER FIRMS IN the ultra-competitive healthcare field are at a severe disadvantage. With medicine becoming heavily IT-centric, the larger companies can afford enterprise systems to automate every aspect of medical practice. Small to mid-sized medical businesses, however, don't

have deep enough pockets to be able to invest in such IT resources. Yet they are subject to the same data compliance and storage needs.

A host of regulations, including HIPAA, places a major data retention burden on these companies. Patient records have to be retained securely for lengthy periods.

The Archive Appliance Express, or AA Express, by Plasmon is an archiving solution aimed squarely at the SME healthcare market. It has been designed with ease of use in mind. But at the same time, it can cope with growing archive demands.

Plasmon collaborated with other vendors and integrators to integrate AA Express with PACS (Picture Archiving Communication System), which is commonly used in medicine. Plasmon ships AA Express preconfigured for PACS software so it is simple to install and maintain. The appliance provides tiered storage via UDO for long-term retention and RAID for quick access.

UDO is for long-term archiving when data must remain unchanged. It ensures data integrity and has been proven to deliver a lifespan of more than 50 years.

"The Archive Appliance Express is a response to the need for a solution that easily manages the growing archive demands of a SME without the complexity and cost of an enterprise level product," said Terri Black, vice president, Marketing, Plasmon. "We are working with industry leaders like GE Healthcare and AGFA to deliver innovative solutions to underserved markets."

Plasmon Archive Appliance Express

Starts under $10,000

Provides permanence, authenticity, access, longevity, and removability at a low cost to small to midsized healthcare providers

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MESSAGING & TELEPHONY JULY 20, 2007

VMC 1000 Unifies Videoconferencing With Video Content Management

Polycom Helps Admins Oversee The Entire Video Life Cycle

POLYCOM'S NEW VMC (Video Media Center) 1000 gives IT staff a complete management tool to handle video content throughout the whole video life cycle, from creation to archiving. The VMC 1000 is compatible with all Polycom endpoints, as well as other H.323-standard compatible devices, making it easy to implement and easy to add users. IT administrators can also use it in conjunction with Polycom's other videoconferencing solutions. In addition to its new VMC 1000, Polycom also offers the RSS 2000, which helps bring together Web streaming video content with traditional videoconferencing while scaling to a very high number of users—up to 1,000.

While video streaming, Webcasting, and real-time interactive videoconferencing have existed for quite a while, the VMC 1000 is the first product to market that unifies the two paradigms of information exchange. This opens up a broad range of apps that can be enhanced with this integration of technologies. For instance, some types of activities that can benefit from deploying the VMC 1000 include internal and external meetings and announcements, education and training, distance learning, recorded lectures, self-study programs, field sales training, and product demonstrations to targeted audiences.

The use of videoconferencing, coupled with streaming content, can be a very effective means of cutting costs—compared to traditional voice telephone com-

munications or teleconferencing—when it comes to engaging potential customers or illustrating abstract points during important meetings. The Polycom VMC 1000 is a good candidate for IT managers to evaluate when searching for new ways of maximizing the efficiency of communications throughout the enterprise.

Polycom VMC 1000

Starts at $95,000

Gives IT managers a dashboard and control center to manage the complete video life cycle

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MarketPlace NEWS

Google Buys Postini

Google announced that it will buy Postini for $625 million. The messaging security company will help Google make its hosted applications more appealing to big businesses. Although Google reports that 1,000 small businesses sign up for Google Apps each day, security and corporate compliance concerns have prevented many larger businesses from using hosted applications. According to Google, it plans to use Postini's messaging security, archiving, policy enforcement, and other services to boost the security of Google Apps in an effort to curb the concerns of big businesses.

China Slated To Overtake India In Offshoring

According to an IDC study, the current trend of India being the leading country for offshoring may change in the next few years. IDC predicts that China will be the new No. 1 destination for offshoring by 2011, with Beijing and Shanghai leading the way. IDC's study looked at 35 cities located in the Asia/Pacific region and compared them based on factors such as turnover rate, costs for labor and rental, and language skills. IDC noted China has made significant investments in certain areas favorable to offshoring activity, such as Internet connectivity, tech skills, and development of infrastructure.

Three Tech Leaders Announce Joint Project

Microsoft, Cisco, and EMC have formed an alliance to develop a security-enhanced, multivendor, information-sharing technology architecture for helping protect and share government information. The project, dubbed SISA, or the Secure Information Sharing Architecture, combines applications, infrastructure, and networking technologies from those three companies, as well as Liquid Machines, Swan Island Networks, and Titus Labs. SISA's goal is to make it easier for government agencies to share data by helping them more easily set up secure virtual networks for different authorized users and groups to access sensitive files stored in different systems.

Verbatim Buys SmartDisk

Storage and imaging product manufacturer SmartDisk has been acquired by Verbatim in a deal involving all of the company's assets, including its external hard drive and digital imaging business. In order to help with the transition, Verbatim is hiring key personnel in the areas of engineering, operations, marketing, and sales. As a result of the acquisition, Verbatim will be able to offer an expanded range of optical, magnetic, and flash products.

SAP Admits Inappropriate Downloads

SAP says one of its U.S. subsidiaries downloaded "inappropriate" data from Oracle's Web site late last year. SAP admitted to the wrongdoing as a result of a March lawsuit Oracle filed accusing SAP of intellectual property theft. Employees at SAP subsidiary TomorrowNow reportedly used the login information of some of its clients to download data from Oracle's site that the clients were not entitled to. SAP CEO Henning Kagermann says TomorrowNow employees did not share the data with SAP and that the company is working to supply the U.S. Department of Justice with documents related to the case.

Microsoft Patches 11 Vulnerabilities

Microsoft Windows, Office, and .Net Framework received six security updates, which patched 11 different vulnerabilities, including five with critical ratings. Security analysts are naming MS07-039 as the most important. The patch corrects two bugs in Active Directory in Windows 2000 Server and Windows Server 2003, the worst of which affects the way Active Directory validates LDAP requests. Making the vulnerability even more dangerous is it does not need any user interaction to be exploited. Microsoft says, "An attacker who successfully exploited this vulnerability could take complete control of an affected system."

IDC: IT Spending Up

Spending on network equipment, software, and PCs increased during the first three months of this year, according to research firm IDC. But spending on disk storage systems and high-end servers was down during the same period. In its U.S. IT Spending 2007-2011 Forecast, IDC says that overall spending on network equipment will increase 12% this year. In addition, money spent on software will increase 9%, and money spent on PCs will increase 8%. IDC predicts overall IT spending will increase 6.9% this year but cautions that IT spending depends on the direction of the overall economy.

In Asia, Google Trails Competitors

Contrary to Google's dominance in the rest of the world, the search giant does not enjoy the same popularity in Asian countries. Of the countries in Asia that comScore Networks surveyed in May, Google was not the market leader in any of them. In China, Australia, and New Zealand, Microsoft attracted the most visitors to its sites, while Yahoo!'s sites were the most popular in Japan, India, Taiwan, Hong Kong, Malaysia, and Singapore. comScore also found that Asia's largest online population is in China, followed by Japan and then South Korea.

Zero-day Bug Averages 348-day Life Span

At the SyScan '07 security conference in Singapore, Justine Aitel, chief executive officer of security vendor Immunity, said the average zero-day bug lives for 348 days before someone discovers or patches it. Hackers and other cybercriminals often use them as a tool to infiltrate companies' systems in order to steal or change data. Immunity buys zero-day bugs and keeps track of the bugs' life spans before they are publicized or patched; Aitel said bugs can last anywhere from about 99 to 1,080 days. She also pointed out that zero-day bugs are a threat firms often overlook.

Microsoft To Open Center In Canada

Microsoft announced plans to open a new software development center in Vancouver, British Columbia, as it works to better attract talented employees from around the world. The Microsoft Canada Development Centre will open this fall and work in conjunction with Microsoft's other software development centers located in the United States, Ireland, Denmark, and Israel. One of the primary reasons for choosing the Vancouver site, according to Microsoft, was to accommodate skilled workers who were facing immigration issues in the United States. Microsoft has supported legislation to raise the United States' H-1B visa cap but has been unsuccessful thus far.

Certified Security Pros Earn More Than Noncertified

Firms are paying formally certified professionals in security roles between 10 and 15% more than noncertified security pros in comparable positions, according to a report from Foote Partners. CISSP (Certified Information Systems Security Professional), CISM (Certified Information Security Manager), and CISA (Certified Information Security Auditor) are the programs whose professionals garner the highest salaries. This trend contrasts the movement of certified professionals in other sectors earning about 2% less this past year than they previously had. Foote noted that customers are demanding higher security standards in general, which has helped spur the demand for qualified security professionals.

Hackers Target Execs

According to security vendor MessageLabs, hackers seem to be increasingly targeting specific people in senior management positions. The company has found a significant increase in malicious emails, catching an average of 10 emails per day in May, which is up from one email a day a year ago, says Chief Security Analyst Mark Sunner. The emails are intended to deceive the recipient into believing it is from someone he knows and may even contain his name and title in the subject line. Attachments to the emails may contain a Word document containing executable code, which can infect a computer when it is opened. Through the code, hackers hope to collect company data. Last month, MessageLabs reported more than 500 of these messages, 30% of which were aimed at chief investment officers.

WATCH THE STOCKS

This information provides a quick glimpse of current and historical stock prices and trends for 16 major companies in the technology market.

Company	Symbol	Year Ago	July 3 $	July 11 $	% change from previous week
Avaya	AV	$10.54	$16.97	$16.99	▲ 0.12%
BEA Systems	BEAS	$11.89	$13.48	$13.69	▲ 1.56%
Computer Associates	CA	$19.92	$25.86	$25.61	▼ 0.97%
Cisco Systems	CSCO	$17.95	$28.10	$28.76	▲ 2.35%
Dell	DELL	$20.75	$28.71	$28.37	▼ 1.18%
Electronic Data Systems	EDS	$22.83	$28.12	$28.10	▼ 0.07%
Google	GOOG	$390.90	$534.34	$544.47	▲ 1.9%
HP	HPQ	$31.07	$45.58	$45.65	▲ 0.15%
IBM	IBM	$75.99	$106.58	$109.10	▲ 2.36%
Intel	INTC	$17.48	$24.59	$24.57	▼ 0.08%
McAfee	MFE	$23.37	$35.40	$35.55	▲ 0.42%
Microsoft	MSFT	$24	$30.02	$29.49	▼ 1.77%
Oracle	ORCL	$14.98	$20.07	$19.98	▼ 0.45%
Red Hat Software	RHT	$24.44	$21.83	$21.26	▼ 2.61%
Sun Microsystems	SUNW	$4.02	$5.22	$5.38	▲ 3.07%
Symantec	SYMC	$15.60	$19.88	$19.53	▼ 1.76%

NOTE: This information is meant for reference only and should not be used as a basis for buy/sell decisions.

Upcoming IT Events

- JULY -

SANSFIRE 2007
July 25-August 3
Washington, D.C.
www.sans.org

- AUGUST -

National Institute of Governmental Purchasing
August 4-8
Hartford, Conn.
www.nigp.org/Events/Forum.htm

LinuxWorld Conference & Expo
August 6-9
San Francisco, Calif.
www.linuxworldexpo.com

SHARE
August 12-17
San Diego, Calif.
www.share.org

Business & Technology Solutions Show
August 21-22
Rosemont, Ill.
www.btshow.org

Gartner Financial Services Technology Summit
August 27-29
New York, N.Y.
www.gartner.com/it/page.jsp?id=498092&tab=overview

Gartner Enterprise Planning & Architecture Strategies Seminar
August 28-29
New York, N.Y.
www.gartner.com/2_events/conferences/epas073.jsp

- SEPTEMBER -

Enterprise Architecture 2007
September 5-7
Washington, D.C.
events.fcw.com

InfoSecurity
September 11-12
New York, N.Y.
www.infosecurityevent.com

Data Center World Fall 2007
September 16-19
Dallas, Texas
www.datacenterworld.com

Gartner Business Process Management Summit
September 17-19
Orlando, Fla.
www.gartner.com/it/page.jsp?id=501307&tab=overview

Intel Developer Forum
September 18-20
San Francisco, Calif.
www.intel.com/idf

Gartner Open Source Summit
September 19-21
Las Vegas, Nev.
www.gartner.com/it/page.jsp?id=502444&tab=overview

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SIX QUICK TIPS

IT Equipment Recycling: Tips To Guide The Way

by Chris A. MacKinnon

• • •

The IT equipment you invested in a few years ago has reached the age of maturity in your data center and is no longer able to carry the load it used to. It's now time to decide what to do with the old equipment. Selling the equipment to get back a portion of the initial investment is always an idea but can be a laborious process for IT and data center managers. IT equipment recycling is, however, becoming a popular option among SMEs.

Data Destruction

Steve Walden, CEO of the Asset Disposition Group (www.assetdispositiongroup.com), says you are responsible for the information stored on every system within your company (including customer and employee information). Walden says, "Compliance demands from Sarbanes-Oxley, Gramm-Leach-Bliley, Patriot Act, ESIGN [Electronic Signatures In Global and National Commerce Act], HIPAA, [and other legislative actions] have been enforced to all of us who assume the responsibility of data stored on electronic media. SMEs should trust their data destruction services to a NAID-certified member [National Association of Information Destruction]. How else can you assure that you have a watchdog regarding best practices?"

Rocco D'Amico, president of Computer Recycling USA (www.computerrecyclingusa.com), says there are several options available for data destruction today. D'Amico explains, "You can contract with a third party to come onsite and physically destroy equipment. You can do it yourself internally, or you can outsource the activity to an offsite third party. The key in all of the choices is to pay attention to how the quality of the data destruction process is managed." D'Amico says if data absolutely must be destroyed, the only foolproof method is to witness the physical destruction at your facility.

Cliffie McKay, head of operations at DMD Systems Recovery (www.dmdsystems.com), says some recycling companies offer data destruction services that range from document shredding to hard drive destruction (for an additional fee). He says DMD Systems Recovery even adds hard drive tracking so that customers can tell which machines the hard drives came from and the number of drives that machine had in it. "These destruction methods," McKay says, "meet the Department of Defense 5220.22-M specifications that are required for the destruction of sensitive data."

Reporting & Documentation

McKay says when it comes to IT equipment recycling, it's important to understand good recycling reporting and documentation. He notes, "When looking at different electronics recyclers, a person wants to make sure that they are working with someone that is certified by the government to recycle electronics. Documentation is also important."

McKay says some recyclers offer a report with the serial numbers and asset numbers of all of the equipment that they received. He says this allows for the IT staff to remove their equipment from the current inventory after a full audit has been performed.

According to D'Amico, good reporting is the cornerstone of a good recycling program. "If a pollution violation occurs," he notes, "your old equipment will be traced back to you by serial number. If you cannot document that you had properly recycled that specific piece of equipment, you have a problem." D'Amico says a good report should tell you the location the equipment was picked up from, the identity of specific items that were recycled (by serial number), and indicate what the final disposition for each item was.

"If a pollution violation occurs, your old equipment will be traced back to you by serial number."

- Computer Recycling USA's Rocco D'Amico

The Cost Of Logistics

McKay says it's important to not underestimate the cost of logistics. He notes, "The removal of out-of-date equipment can cost companies vast amounts of money every year due to the logistics of removing, packaging, and shipment of equipment. Some companies choose to have the equipment ready on a shipping dock and having a freight courier come and pick it up. Other companies choose to have a recycling company come in, package the equipment, and arrange for a freight courier to take the pallets to the destination of their choice."

McKay says like any job, there are different costs to each of these services. He says packaging of the equipment is usually done by the hour, while transit costs are charged the actual costs of the shipment.

In D'Amico's opinion, the cost of onsite packing and shipping can easily exceed the cost of recycling. He says some factors that impact costs are the time it takes to load, whether a facility has a loading dock or freight elevator, the amount and types of material that need to be recycled, whether the recycler operates his own trucks or subcontracts, and the distance to ship to the recycler. "The surprises occur," D'Amico notes, "when you get a price quote that is based on an hourly or per pound rate. Insist on a flat fee for logistics cost."

Don't Recycle

This doesn't mean don't recycle at all; rather, it means let someone from outside your business do the recycling for you. Walden says that recycling computer equipment has so many variables and liabilities that it is best suited to experts in the industry.

McKay says as the government talks about implementing more strict electronic recycling laws and the United States moves toward a "go green" stance, businesses have to start making sure that their computer equipment is getting disposed of properly. He explains, "Companies, such as DMD Systems Recovery, aide with the issue of electronics recycling by removing the equipment from your office and sending a complete audit of the equipment that was removed."

So what happens if companies don't follow through with proper disposal and recycling? Walden says there is no need to explain the risks involved; just open any paper, and you will find the scores of litigation as a result of poor practices.

BONUS TIPS

Here are two bonus tips from Cliffie McKay, head of operations at DMD Systems Recovery (www.dmdsystems.com).

Why recycling helps the economy. Some of the biggest issues with electronics at their end-of-life are the toxins that are used in their design. Recycling computers and other electronics equipment to a certified recycler assures you that the equipment won't end up in a landfill where they can potentially pose health and environmental risks by letting the toxins contaminate the local ground and groundwater.

Where to recycle your equipment. There are many different ways that computer or electronics equipment can be recycled. Most recycling companies offer to have the equipment dropped off at no expense to you. Computer equipment can also be donated to other nonprofit organizations or schools that are looking to upgrade their own equipment. Large companies such as Dell (www.dell.com) and Toshiba (www.toshiba.com) even offer a consumer trade-in program that allows customers to send old computers in once they receive new ones. All of these options have come due to new guidelines by the U.S. Environmental Protection Agency that allow for a limited amount of electronic scrap to be sent to the recycler.

Best Return On Investment: Consider Revenue Share

❍ The easiest way to get more bang for your buck when it comes to recycling is to ask about a revenue share with the recycler, says Computer Recycling USA's (www.computerrecyclingusa.com) Rocco D'Amico. Most recyclers are selling your old equipment in whole or in part anyway. Why shouldn't you share in the revenue generated? Many people don't even know a revenue share option is available if you meet certain guidelines.

Easiest To Implement: Let It Go

❍ According to Rocco D'Amico of Computer Recycling USA, when it comes to recycling, oftentimes people cling to material that they later wished they had gotten rid of in the first place. The old material ends up taking space and getting in the way and eventually gets thrown out anyway. Be realistic, if you haven't used it for six months or longer, chances are you aren't going to use it in the future.

Recognize Network Problems In Record Time

Xangati's RPI Appliance Rapidly Pinpoints Trouble

Every IT manager wants to implement a proactive response to trouble on the network, but sometimes it is difficult to determine the best method to use. Many tools are expensive; others are difficult to implement; and some are hard to maintain.

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The Xangati RPI is novel in its approach. It applies a technique termed "precision profiling," which uses many different metrics for each object on the network and then measures them to a much greater granularity (polling 40 times more often than the competition). With this technique, any change in an endpoint or application's behavior can be noticed much quicker than with more traditional methods or with competitors' products.

The RPI Appliance defines a "problem" as any deviation from the profile of an endpoint or application. Data is then collected about the network behavior, which assists in analyzing the problem.

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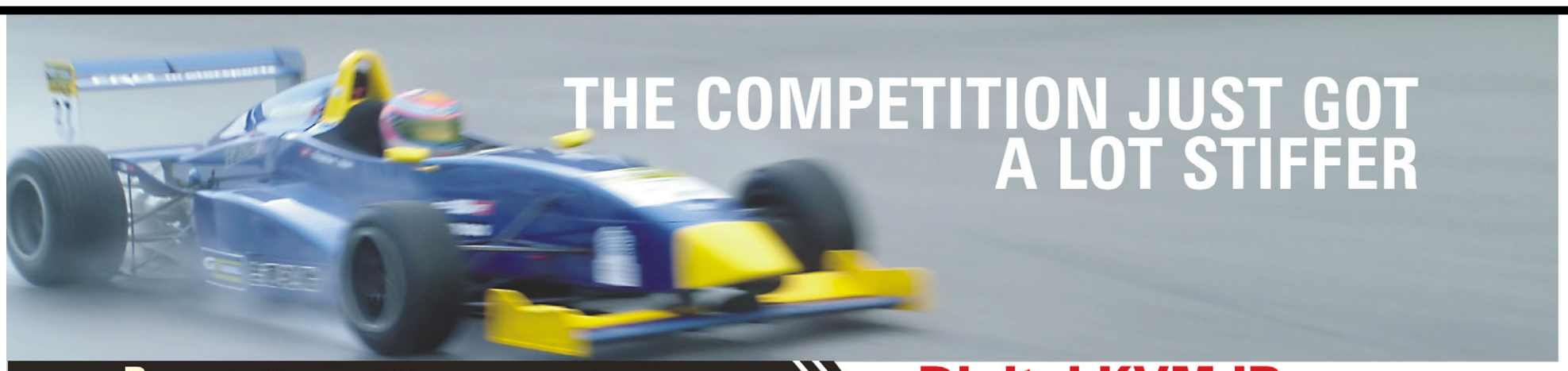

Remote Server Management — Digital KVM IP

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Access servers & serial devices from anywhere in the world

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UltraLink™
Manage & monitor servers from anywhere in the world

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- Secure encrypted operation
- Scaling, scrolling, and auto-size features
- Quad screen, real-time viewing of 4 computers
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- Available in single, dual, and quad models

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Expandable, multi-user switch for connecting 1,000 computers

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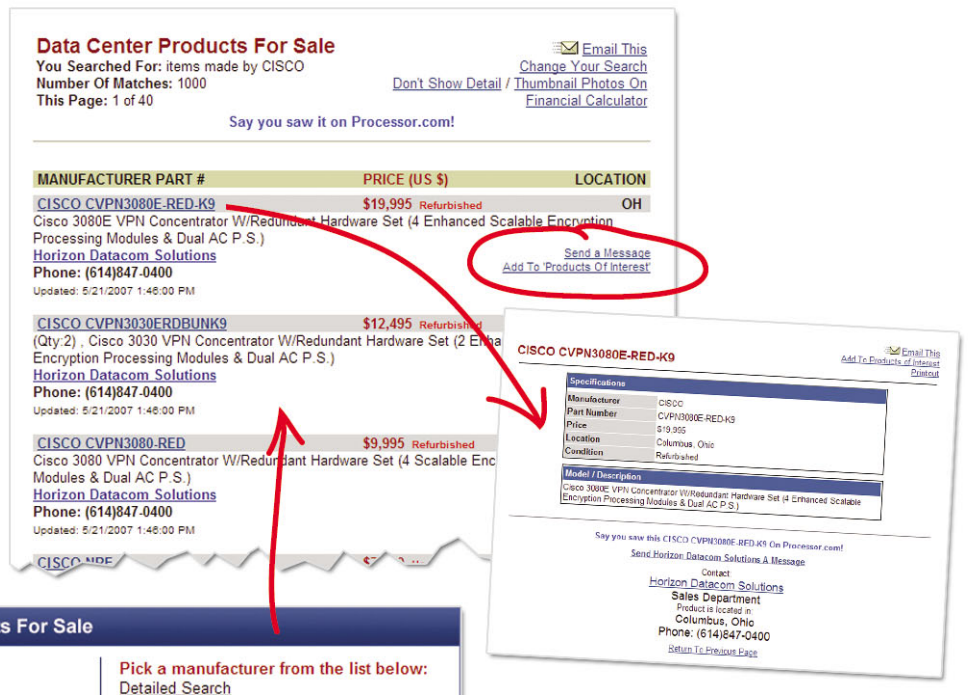

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You'll find the **Data Center Products For Sale** section toward the bottom of our home page.

If you have a specific part number you need, enter it in the Search For box. Be sure to use this box only for part numbers; do not enter manufacturer or model names. Click the radio button next to Starts With, Contains, or Exact Match. To provide you with the best possible search results, the default is Contains.

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SERVICES

APRIL 6, 2007

Turn Old Equipment Into Cash

Horizon Datacom Solutions Helps Businesses Make The Most Of Their Network Hardware Investments

HORIZON DATACOM SOLUTIONS, located in Columbus, Ohio, has one specific goal: helping businesses make the most of their network hardware investment. Many businesses are faced with growing (sometimes painfully high) capital budgets, and yet they have literally stacks of switches, routers, wireless gear, and other network hardware that they have outgrown, no longer need, or don't have room for. Some businesses find that they have racks filled with decommissioned hardware, or that due to expansion or changing needs, they don't have the right equipment.

In the past, the hardware would simply sit in a spare room or corner until it was eventually hauled away and disposed of in a mass "asset recovery" that took CRT monitors, desktop computers, printers, and other e-waste and hauled it away. But this no longer has to be the case.

Horizon Datacom Solutions specializes in refurbishing network hardware and can help you recover value out of what you have. Plus, selling your equipment to us helps keep it out of a landfill, helping contribute to your corporate "green" initiatives.

Get Value From Used Equipment

Horizon Datacom helps businesses and organizations get value back from their used equipment. Stated simply: We turn old network equipment into cash.

We are committed to refurbishing and putting that same equipment we purchase back into useful life, which provides additional value to our customers who both save money purchasing from us and get reliable hardware, backed by our guarantee and hard-won reputation for quality and customer service.

At Horizon Datacom Solutions, refurbishing involves much more than blowing the dust off of circuit boards. Horizon Datacom maintains a full testing lab where every piece of equipment is rigorously tested and repaired if necessary. We repaint the chassis, replace missing or broken parts, and carefully repackage the finished product. In fact, many of our customers claim the hardware they purchase from us is virtually indistinguishable from new hardware.

Horizon also offers refurbishing services for companies that want to redeploy their own gear. You simply send it in, have it tested and refurbished, then it's sent back to you, ready to deploy at new locations or for new uses.

Equipment Purchased

We buy large or small quantities of network LAN/WAN, wireless, and VoIP equipment. Or you can use it as credit to update your current infrastructure.

We buy:

- Alteon
- Cisco
- Enterasys
- Extreme Networks
- F5
- Foundry Networks
- HP
- Polycom
- SonicWall

If you have surplus equipment, please note quantities, description, condition, and any other notes where possible.

If you frequently upgrade your equipment or have large quantities to dispose of, let us design an asset management plan for you. We can help you increase both cash flow and return on assets by faxing or emailing your list of surplus equipment.

Real-Time Inventory

Some businesses are leery about buying from the "refurb" market—some with good reasons. eBay can be a crapshoot: You may be dealing with a guy operating out of his garage, or worse, finding yourself buying counterfeit gear.

Horizon Datacom has been in business for more than 10 years. And, in 2003, we were recognized as one of the Inc 500 fastest growing businesses in America. Businesses worldwide purchase refurbished networking equipment from Horizon Datacom.

Horizon maintains a complete, real-time inventory listing on its Web site at www.horizondatacom.com. While some companies may say, "I can get that for you," when you use Horizon Datacom's online store, you can be assured that what you see online is on the shelf and ready to be shipped to you. In fact, most orders are packed and shipped the same day. And right now we're offering free FedEx ground shipping on most orders of $100 or more within the continental United States.

Repeat Customers

Vicky Nosbisch, owner and president of Horizon Datacom Solutions, says, "I'm proud of the fact that most of our customers are repeat customers. Few things give me greater pleasure than buying network gear from a customer, seeing it arrive at our loading dock, then coming back to life in our test labs, ready to find a new home with a new customer."

And Vicky has a challenge: "Send me a list of your unused network gear. We'll show you how much it's worth, make you an offer, and help you find the network hardware you need."

Horizon Datacom Solutions

Specializes in purchasing, refurbishing, and reselling used networking equipment

(614) 847-0400

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Processor's main goal is to bring together buyers and sellers of data center equipment. Both the print publication and Web site include many features designed to achieve that goal: no-nonsense articles, product showcases and listings, our All-In One Search tool, and free For-Sale Listings and Want-To-Buy Messages.

As a *Processor* reader, if you're in need of a particular piece of equipment or have an unused piece of equipment in your data center, take advantage of our For-Sale Listings and Want-To-Buy messages at www.Processor.com.

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On the Processor.com home page, you'll see a **Post A Free** menu in the upper left of the blue bar running down the left side of the page. Click it and then click For-Sale Listing. If you're not logged in or registered on our site, you'll be prompted to do so.

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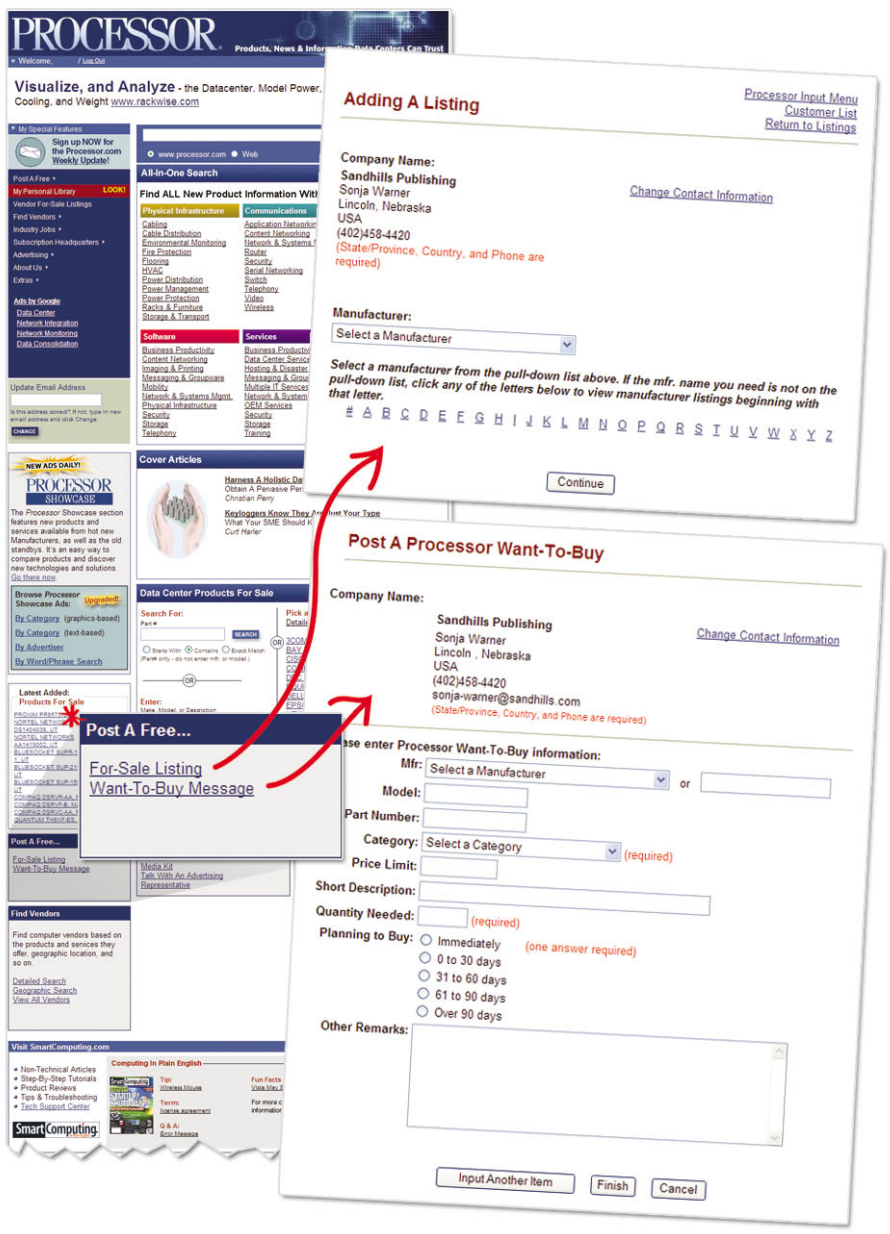

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Direct-Attached Storage

Is A DAS System Right For Your Data Center?

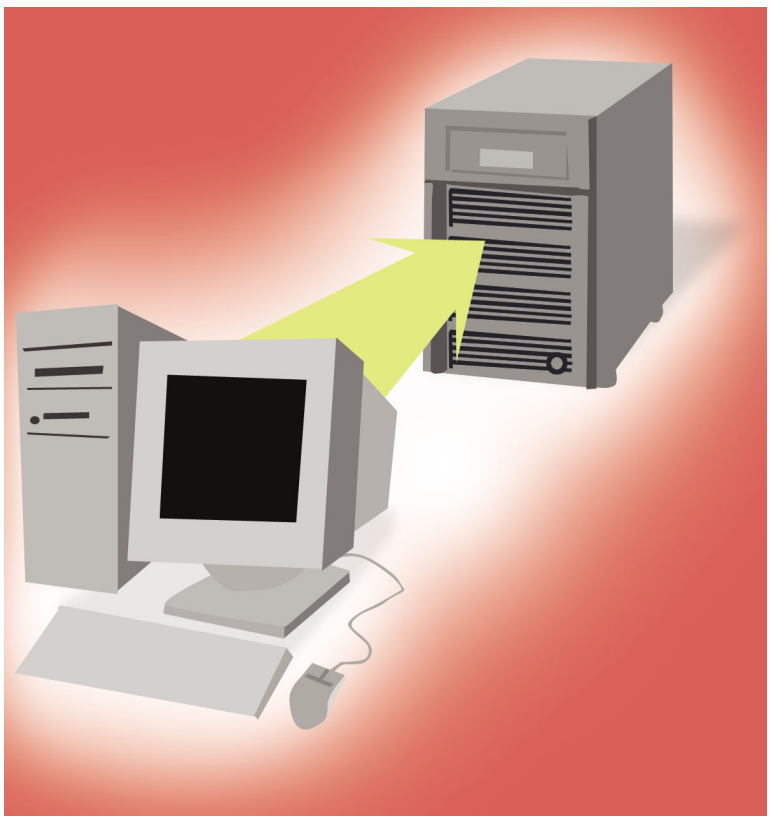
by Elizabeth Millard

• • •

Although NAS and SAN storage tend to be more prevalent in a data center, allowing employees to access multiple applications and areas within a network, there are times when DAS (direct-attached storage) could also make sense in certain situations.

DAS is storage that's true to its name: It's directly attached to one computer or server and isn't typically accessible through or shared by other machines. The main types used are SCSI, SATA, Fibre Channel, and SAS, and the interface with the server or workstation is done through a host bus adapter.

"Historically, a data center would probably find that it's more advantageous to go with a NAS or SAN than a DAS," says Peter Cmaylo, vice president of business development at iStor (www.istor.com). "But there are situations where this type of storage might be what's preferred, maybe as a supplement to what's already in place."



DAS In Use

The most common scenario for DAS use is to connect the storage device to a server that should be isolated, Cmaylo notes, usually because it has a proprietary application on it. But it can also be utilized in less complex environments or at smaller companies that can't keep an IT employee at remote offices.

Cmaylo, for example, uses a DAS at his home office in order to copy data over to iStor networks later.

The systems are also helpful for taking data offsite without using a hosted service, notes Ajay Gupta, general manager of storage at Sabio Digital (www.sabioproducts.com). "Services tend to cost a lot, especially if all you want to do is just take your data someplace else," he says. "We recommend something as simple as a USB drive, up to a more comprehensive system, depending on need."

Sabio's DAS, called DM1, is designed for small offices and home users who don't need a networked system. It's touted as a fast, reliable, and affordable storage device for backing up data and sharing files without creating a LAN. The DM1 attaches directly to a computer through a USB 2.0 or eSATA port and looks like another drive installed on the machine.

Dell (www.dell.com) has DAS through its PowerVault line, which can run higher in terms of pricing—from about $2,500 to $6,000 per enclosure—but has higher-level features, such as node clusters, redundant architecture with active RAID controllers, and modular SAS architecture.

Pros & Cons

Before comparing DAS systems, it's helpful for data center managers to think about the advantages and disadvantages of the storage strategy.

Disadvantages to DAS tend to be the inability to share unused resources or data with other servers, and there's limited scalability because the number of

Continued from Page 13

Product Roundup

DNF Storage's TaskMaster 14000 JBOD

This series of storage subsystems is designed for high-bandwidth applications and comes with 14 hot-swappable drive trays for accommodating Ultra320 SCSI drives.

www.dnfstorage.com

Enhance Technology's R8 Series

The series is a line of storage systems available in RAID or JBOD array, with 2U rack-mount design that houses eight SAS or SATA disks. It features a host option of SCSI, SAS, or SATA and promises data transfer of more than 240MBps.

www.enhance-tech.com

Excel Meridian Data's TravelStor 8C

Designed for smaller businesses or small projects, the TravelStor has a choice of a fixed power supply in the single host and hot-swappable power in the dual host. Both have a RAID controller, and the system is designed to be low maintenance and easy to set up.

www.emdstorage.com

SansDigital's EliteSTOR Series ES104UB

A rack-mountable system with FireWire 800 and USB 2.0 host interface, the device includes four hot-swappable hard drive trays for SATA drives and supports SATA I and SATA II with up to 750GB per hard drive.

www.sansdigital.com

Physical Infrastructure — July 6, 2007

Network Infrastructure Survival

CPI's N-Series TeraFrame™ Network Cabinet Designed To Meet Cisco's Third-Party Specifications For 6500 & 9500 Switches

The N-Series TeraFrame™ Network Cabinet from Chatsworth Products Inc. (CPI) is engineered to solve thermal challenges associated with network switches using side-to-side airflow in a hot aisle/cold aisle layout. By employing CPI Passive Cooling™ Solutions, the N-Series TeraFrame serves as a complete and cost-effective solution for high-density applications, involving no active components to increase energy and maintenance costs or compromise redundancy, while decreasing total cost of ownership.

When deploying switches with side-to-side airflow, the N-Series TeraFrame can be equipped with CPI's Network Switch Exhaust Duct. The exhaust duct removes hot air by isolating and redirecting it out the back of the cabinet and into the hot aisle, minimizing hot air recirculation and essentially converting side-to-side airflow into a front-to-rear airflow pattern. By running the entire height of the cabinet, one Network Switch Exhaust Duct can support exhaust for up to three network switches and provides freedom to organize and move equipment as needed.

Available in 10 heights and 11 depths, the N-Series TeraFrame offers the most comprehensive choice for supporting network switches inside enclosures, while also presenting advanced cabling solutions.

Remove hot exhaust air. Isolate and redirect exhaust air into the hot aisle.

Maximize energy efficiency. CPI Passive Cooling Solutions involve no active components and decrease TCO.

Supports hot aisle/cold aisle layout. Proper room design and airflow management allows network and server cabinets to sit next to one another.

Extra cable capacity. Offset doors and side panels provide more interior space.

Easy cable access. Cables route around the frame for easy access.

Simple RMU organization. Cable guides and management spools divide and organize cables.

CPI's N-Series TeraFrame meets third-party specifications for Cisco® 6500 and 9500 switches and provides the ultimate network cabinet solution. To personalize the N-Series TeraFrame, go to www.chatsworth.com/configurator.

CPI N-Series TeraFrame Network Cabinet

A network cabinet designed with airflow and temperature control considerations in mind

(800) 834-4969

www.chatsworth.com

CHATSWORTH PRODUCTS, INC.

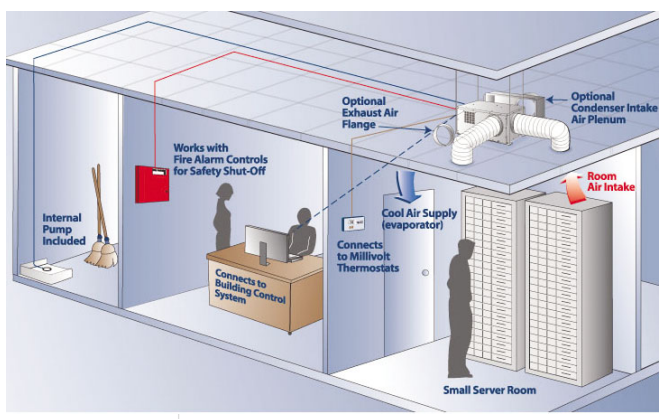
Physical Infrastructure — April 13, 2007

Cooling For Cramped Spaces

MovinCool CM12 Ceiling-Mounted Unit Designed To Save Space & Money

Spot cooling is an energy-efficient alternative to central air conditioning. But often the main roadblock to efficient cooling of cramped server telecom and equipment rooms is the lack of floor space to accommodate a roll-in portable spot cooler. The MovinCool CM12 offers a convenient solution: It's a lightweight, space-saving, easy-to-install ceiling-mounted unit.

The CM12 delivers 10,500Btu/H of cooling in a self-contained unit that mounts easily with off-the-shelf hardware. It connects to a standard 115V, 15-amp circuit.



The CM12 features the shortest top-to-bottom profile in the industry—only 15.5 inches—ensuring it will fit into nearly any drop ceiling. In addition, the CM12 comes with several cost-saving capabilities and safety features:

- Conveniently controlled by most off-the-shelf Millivolt thermostats
- Works with fire alarm controls for safety shut-off
- Self-contained system requiring no refrigerant piping
- Built-in supply and return air flanges enable easy duct installation and improved air circulation
- Warning signals and alarms for condensation overflow and unscheduled shutdown can be wired to a central location
- A standard internal pump
- Mounting brackets designed for off-the-shelf mounting hardware

In addition to the CM12, MovinCool offers the Office Pro lineup of portable spot cooling solutions for low-temperature equipment cooling; the Classic and Classic Plus Portable Series for harsh environments; and the PC7 Portable Air Conditioner for individual hot spots.

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Offers an energy-efficient, space-saving alternative to central air conditioning

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MOVINCOOL® THE #1 SPOT COOLING SOLUTION

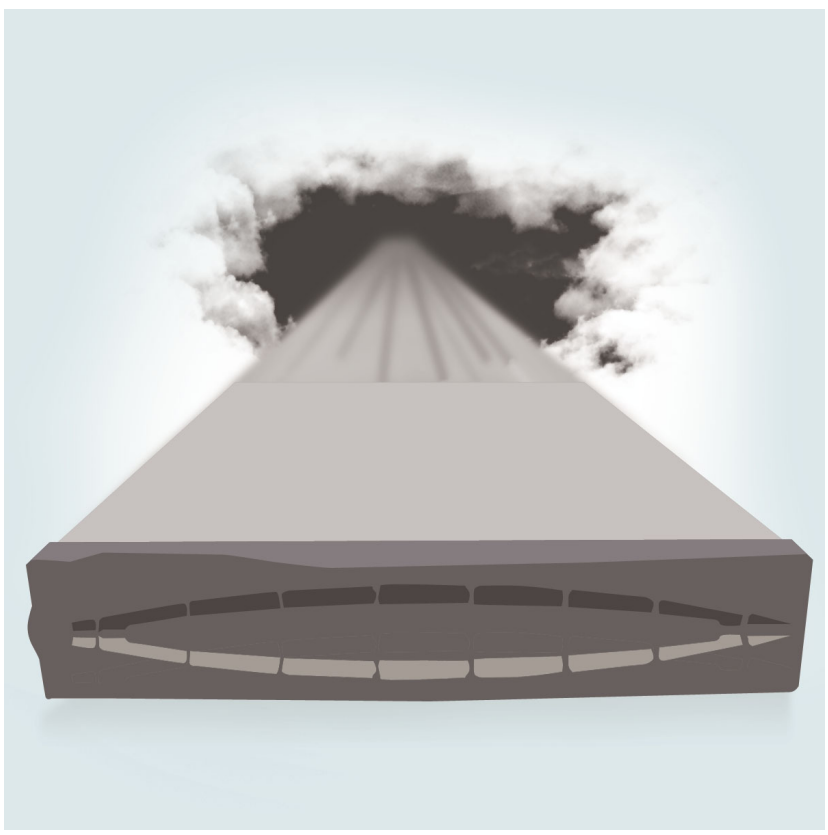
NAS Technology & Product Update

Feature Convergence Allows Single Appliances To Serve Multiple Storage Roles

by Kurt Marko

• • •

One of the macro trends in IT hardware during the past decade has been the proliferation of dedicated devices that replace general-purpose servers for various infrastructure services. Where once an IT department might have deployed Unix boxes as mail gateways, firewalls, or network storage, specialized hardware appliances are now often preferred for their convenience and reliability. This trend is acutely apparent in the growing popularity of NAS (network-attached storage) products that implement the most common file-based protocols (NFS and SMB/CIFS), sporting multiple disk trays with various RAID levels, all configured via an embedded Web-based management console. NAS devices undoubtedly simplify the deployment of network file shares, but because databases and some mail servers (notably Exchange) require block storage devices, a single appliance hasn't been capable of meeting all of a company's storage needs. That's all changing in light of a major recent trend in NAS hardware: convergence.



The growing popularity and maturity of iSCSI, an Ethernet-based protocol for building SANs, has made it possible for storage vendors to consolidate both block and file storage on a single IP-based platform. Known as unified storage, these products combine the convenience and usability NAS appliances are famous for with the flexibility and sophisticated storage management functionality of enterprise SAN offerings.

NAS Product & Technology Trends

Andrew Reichman, storage and networking analyst at Forrester Research, observes that NetApp (www.netapp.com) has been a leader in developing so-called "unification engines" that simultaneously support NAS and IP SAN; however, products built around Microsoft's Windows Unified Data Storage Server 2003 (www.microsoft.com) are pushing this functionality to a broader, midrange audience. Illustrating this trend, IDC Research Manager Natalya Yezhkova predicts that sales of sub-$50,000 storage systems will grow faster than the overall NAS market through 2011, reaching close to 50% of the total, noting, "This price segment is a sweet spot for systems targeted at SMB customers."

According to Greg Schulz, principal at StorageIO (www.storageio.com), the value proposition of unified storage products is identical to that for multifunction printers—lots of features and convenience at a reasonable price—adding that most storage "all-in-ones" have been designed up front for SMEs. He points out that unified storage appliances are easier to install and configure than their predecessors and offer features, such as snapshots and replication, formerly found only on high-end enterprise systems. Schulz feels that all-in-one appliances hit a sweet spot by balancing cost, ease of installation, and functionality. He adds that at the low end of the market, vendors such as Buffalo (www.buffalotech.com) or Iomega (www.iomega.com) have focused on cost and capacity at the expense of performance and functionality, while at the other end of the spectrum, traditional storage vendors such as EMC (www.emc.com) and IBM (www.ibm.com) are trying to downscale their enterprise products for a more mainstream, SME audience.

Major Vendors For SMEs

According to Forrester's Reichman, the major vendors in the overall NAS market are EMC Celerra, NetApp, and Microsoft's Windows Storage Server OEMs, particularly Dell and HP. Like EMC, NetApp has traditionally targeted high-end enterprise storage applications; however, with the recent introduction of its StoreVault division—so far comprising just a single product—NetApp is explicitly targeting SMEs. Reichman also mentions that Hitachi Data Systems (www.hds.com), another historically high-end vendor, has entered the midrange unified storage market with its Adaptable Modular Storage products. Smaller vendors that focus on higher performance niches include agámi Systems, Compellent Technologies (www.compellent.com), DNF Storage, and EqualLogic (www.equallogic.com).

Unified NAS/SAN functionality is found in the hottest new products from all the major vendors, including StoreVault's S500, HP's All-in-One Storage systems, and Dell's PowerVault NX1950; however, many smaller companies are fighting back by offering better price performance, more flexible configurations, or higher-end features. Schulz from StorageIO highlights agámi Systems as having designed very high-performance NAS appliances suitable for applications requiring increased I/O throughput. Higher up the features and performance curve, Schulz and Reichman both find BlueArc's (www.bluearc.com) storage controllers worth a look.

Entry-level vendors, such as Buffalo, Iomega, Linksys (www.linksys.com), and Netgear (www.netgear.com), are moving

Go to Page 13

Noteworthy NAS Products

Low/Mid-End

HP StorageWorks All-in-One 400/600/1200

Deliver everything you need to lower the cost and complexity of rapidly growing data storage environments

www.hp.com

Sans Digital AccuNAS Series

1U and 2U servers featuring Intel Pentium Dual Core CPUs, a performance tuned Linux-based server OS with unlimited clients, up to 3TB (1U) or 6TB (2U) storage, PCI-X expansion, and dual Gigabit Ethernet

www.sansdigital.com

Mid/High-End

agámi Systems AIS3000 and AIS6000 series

Unified storage solutions with live file system replication, four to six times higher performance, five times better space density, and 50% lower power and cooling

www.agami.com

Dell PowerVault NX1950 Integrated NAS Solution

A unified storage device merging NAS and SAN using Microsoft's Windows Unified Data Storage Server 2003; its modular design and unified management simplifies system setup and ongoing management

www.dell.com

DNF Storage FlexStor Windows-server-based Appliances

DNF Storage DataStor Linux-based NAS Appliances with solutions based on Windows Storage Server 2003 (FlexStor-NAS) and the Linux-based options (DataStor), DNF NAS products offer a variety of hard drive interface choices, including SATA, SCSI, and Fibre Channel disks

www.dnfstorage.com

NetApp StoreVault S500

All-in-one storage appliance that offers NAS, SAN, or DAS functionality; capacities start at 1TB and can scale to 6TB

www.storevault.com

Mainframe Digital Archiving

Bus-Tech Collaboration Integrates With Hitachi Archiving

Bus-Tech has teamed with Hitachi to create an integrated platform for a mainframe tape-on-disk digital archiving platform, promising high density and fast data retrieval to meet requirements for business data growth.

The platform combines Hitachi's Content Archive Platform with Bus-Tech's MDL (mainframe data library) and MAS (mainframe appliance for storage) to create secure long-term preservation and retention of data with easy and fast access to specific stored information, says Jim O'Connor, director of product marketing for Bus-Tech.

"It's very scalable and has modest I/O requirements," he says. "The real beauty of the platform is that it's a monolithic approach. You can store a very large amount of data and still get at the information you need in subseconds, making it much more applicable to use with online applications like online banking or other ecommerce."

The Bus-Tech MDL and MAS are tape-on-disk appliances that attach to IBM zSeries mainframe I/O channels. The systems use GbE IP and Fibre Channel to attach to disk storage systems. The platform can virtualize up to 1,024 MDL or 256 MAS tape drives, which enables the mainframe-based applications to store data on the Hitachi archiving system by writing sequential files to disk as if they were standard tape devices.

"If you look at mainframe storage, it's been a pretty static technology over the past number of years," O'Connor says. "With the increase in restrictions and regulations imposed by agencies like the Securities and Exchange Commission such as Sarbanes-Oxley, however, there are now requirement to keep a lot of what was once thought of as fairly benign data for years."

This is Bus-Tech's first partnership with Hitachi, but the company has previously collaborated with EMC's Centera CAS (content-addressed storage) system and NetApp's SnapLock storage and software.

Mainframe digital archiving solution

Starts at $110,000

Fully integrated solution for mainframe tape-on-disk archive operations

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BUS-TECH INC.

Storage-Area Networks

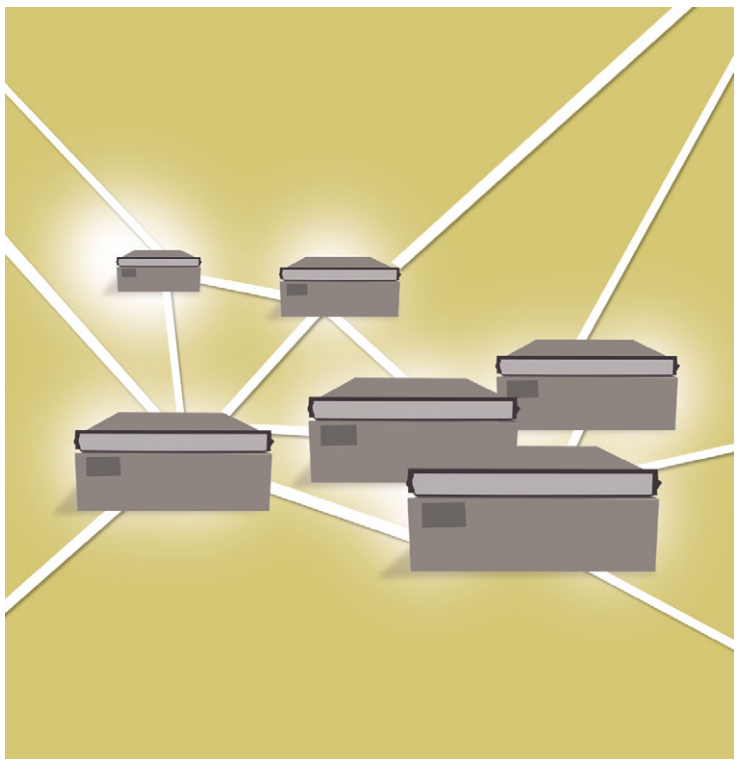
Choosing The Right Option For Your SME

by Don Reisinger

• • •

SANs, or storage-area networks, are a way to manage servers and storage by providing a way for enterprises to use "any-to-any" connectivity in a server-to-storage architecture. As Jay Kramer, vice president of worldwide marketing for iStor Networks, points out, "By putting storage as an intelligent entity on the network, this enables it to be virtualized and the storage capacity provisioned and allocated to the server or application that is needed at a point in time." Once put into place, the network "storage provides higher availability of access to data, accelerated performance for servers to storage communications, increased distance between servers and storage assets, and overall increased scalability of servers and storage resources to grow independently of each other based on the configuration needs of the IT environment."

The benefits of SAN to an enterprise can be endless. But without a solid infrastructure of products from reputable companies, the virtues of SAN may never be realized. As a result, a number of product manufacturers are competing for control of this hotly contested market by basing systems around two main types of SAN: Fibre Channel and iSCSI.



Fibre Channel vs. iSCSI

"Fibre Channel SAN solutions," according to Kramer, "are expensive, need intensive qualification, and are only viable by the high-end enterprise customers that can justify the premium cost and complexity to implement." Historically speaking, Fibre Channel solutions have appealed to larger enterprises. More often than not, a Fibre Channel setup would cost well into the hundreds of thousands of dollars and would be so complex to establish that the virtues of the system (scalability, data transfer speed, and usability) were far outweighed by the steep price tag created by the need for specialized hardware from third parties, such as host bus adapters that can easily cost thousands of dollars.

Although Fibre Channel SAN is still the most prominent type of SAN today, iSCSI is quickly building steam, and according to Zin Huynh, technical sales manager at Enhance Technology, "Fibre Channel is still on top of the data-transfer bandwidth in SAN storage solutions; however, iSCSI is picking up speed and will leap over the competition with its upcoming 4-port 10GbE iSCSI storage systems available from Enhance Technology."

iSCSI utilizes Ethernet TCP/IP networks to connect servers and storage. As Kramer notes, "This model uses standard NIC cards for communications in the servers and standard industry switches to connect iSCSI network storage arrays. Today most major server and storage companies have iSCSI solutions, and this type of SAN is gaining huge popularity as it becomes mainstream technology since it takes the cost and complexity out of implementing and supporting a SAN investment." Simply put, with a jump in speed and the obvious cost benefits, iSCSI is quickly becoming the SAN of choice for most SMEs.

What To Look For In A SAN

SAN products come from a variety of different companies that offer functionality over price or vice versa. Whether you are in the market for the complete SAN setup or a more cost-effective solution, companies such as Enhance Technology, DNF Storage, iStor, QLogic, and others have you well covered.

When setting out to purchase a new SAN infrastructure for your enterprise, it is important first to assess your needs and decide on how much you are able to afford. As mentioned above, Fibre Channel SAN is a fine solution for scalability and "future-proofing," but its prohibitive cost is usually the determining factor as to why data center managers choose an iSCSI system. In recent years, one of the main concerns of data center managers was the speed of the system. Enhance Technology is poised to release a new 4-port 10GbE iSCSI storage system that will allow users to easily and effectively implement a SAN system that is not only more cost effective for the average enterprise but faster than the more expensive Fibre Channel systems. Even better, this iSCSI system is simple to implement into the existing IT infrastructure, and according to Huynh, "If you are new to SAN storage solutions, go for this iSCSI SAN for its versatility, simplicity, affordability, and compatibility with existing network infrastructure."

As SAN systems become more affordable, the old idea of a monolithic SAN system being the norm is quickly coming to a close. As Jame Ervin, product manager for DNF Storage, notes, "SANs are moving downstream. Historically only large organizations have enough data and resources to deploy a SAN. Today's SANs are used for a variety of applications and business sizes." For this reason, Ervin points out that data center managers need to know which category their businesses fall under and purchase products accordingly. If a data center manager works at a midsized enterprise, it wouldn't make sense for her to acquire monolithic systems that are typically put into place by huge corporations. With that framework in mind, DNF Storage has a number of products that are aimed at the SME. Products, such as the StoneFly IP SANs, IPBank iSCSI Appliances, modular SANS based on its SANgear controllers, and the Enterprise RAID product family, are ideal for data center managers in midsized enterprises, and each of the aforementioned products offers affordable prices with great functionality and scalability.

"Look beyond just the big name companies since some of the most innovative network storage technology is coming from the emerging start-up community that can provide a real competitive advantage for your investment in network storage solutions," Kramer says. His company, iStor, has a number of solutions that fit into this idea. iStor provides eight ports of 1GbE connectivity to storage that can be link-aggregated together to handle scalable throughput for bandwidth-intensive applications. Additionally, iStor offers full wire speed of 10GbE to network storage for the highest levels of performance required by the plethora of demanding applications that are currently in use.

QLogic is uniquely acquainted with affordable SAN solutions for SMEs. One of its product groups, the SAN Express, offers a number of fine solutions for data center managers, including Fibre Channel solutions that, while still more expensive than its iSCSI counterparts, are ideal for data center managers who don't mind spending some extra cash for a faster and more capable system.

Options To Consider

DNF Storage's IPBank-L M4-HA16000F

A modular iSCSI appliance that incorporates Fibre Channel-based storage in capacities of 2TB to more than 35TB with the latest iSCSI and Fibre Channel RAID technologies

www.dnfstorage.com

Enhance Technology's 10GbE iSCSI storage system

Allows users to easily and effectively implement a SAN system that is not only more cost effective for the average enterprise but faster than the more expensive Fibre Channel systems

www.enhance-tech.com

iStor's 10GbE GigaStorATX

Supports RAID 0, 1, 10, 5, and JBOD; faster speeds that increase performance

www.istor.com

QLogic's SAN Express

Point-and-click installation, a GUI that controls the entire system, and a lower cost than you would find on other Fibre Channel systems

www.qlogic.com

SPONSORED LINKS

iStor Networks iS326 IP SAN Application Solution
A highly integrated iSCSI storage subsystem that utilizes the system on a chip technology of the GigaStorATX providing up to 10Gbps performance, doubling the maximum 4Gbps speed of any Fibre Channel product
www.Processor.com/iS326

StoneFly Networks Integrated-HA Storage Concentrator HSC-1420
A simple, rapid-to-deploy IP SAN in a box that gives you all of the functionality of our Value SAN in a single chassis
www.Processor.com/HSC-1420

Maximize Your Storage Investment

Nexsan SATABeast Sets New Standards For Performance & Efficiency

The SATABeast extreme density storage array from Nexsan Technologies delivers the industry's best performance and cost-effectiveness in a scalable disk solution. It's the first high-performance, high-capacity RAID storage system to utilize AutoMAID technology, which lets the SATABeast place disk drives in an idle state to conserve energy yet still provide near-instantaneous access to data—the SATABeast lets you access data up to 500 times faster than tape libraries and 20 times faster than other MAID systems.

The SATABeast can scale up to 305TB in a single rack (up to 42 SATA drives in a 4U chassis). It includes single or dual-redundant RAID controllers with FC and iSCSI connectivity, up to 2GB cache per controller, two redundant power supplies, and support for multiple RAID sets and volumes per set.

Other features include:

- The latest high-capacity SATA drives
- OS-independent architecture
- More than 700MBps throughput
- Redundant, hot-swappable components
- RAID levels 0, 1, 1+0, 4, 5, and 6

The SATABeast is ideal for:

Primary storage. Fast wire-speed read/write throughput and high IOPS performance—perfect for data-intensive apps.

D2D backup. Provides the speed, fault tolerance, and availability to deliver superior disk-based backup with a smaller footprint and less cost than tape libraries.

Secondary storage. Enterprise-class features and performance enable large file repositories to be stored on a single system. SATABeast requires no drivers and easily integrates into existing infrastructures.

Online archive. The unmatched capacity of the SATABeast easily handles enormous volumes of files. With its energy-saving AutoMAID technology, SATABeast enables massive archives to be cost-effectively stored and instantly accessed.

Nexsan SATABeast

The industry's most complete and cost-effective high-capacity storage system, with up to 305TB in a single rack

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nexsan TECHNOLOGIES

Structuring Storage

Continued from Page 1

replication and centralize backup over a fast optical network is a major advantage of a SAN."

Despite their size and power, SANs—which are available with older Fibre Channel and newer iSCSI technologies—won't handle all storage tasks well. Drew Meyer, senior product manager for StoreVault (www.storevault.com), says that SANs don't do a great job of solving file sharing problems because they provide storage to a specific computer or computers. Further, he notes, they can be complex to manage, though iSCSI SANs are decreasing in complexity.

The "killer" applications for SANs, according to Poelker, are application servers, email servers, database servers, backup, and any type of application that requires high performance and high availability.

NAS

Unlike SANs, which use block-based data, NAS lets companies share file-based data using a base networking protocol such as TCP/IP along with other protocols structured on top of that base. This architecture can vary widely in size, running from a simple device that is attached to a network to a wide-ranging environment that employs massive file servers. NAS devices are typically used for home directories, email directories, document management, and other file-intensive duties.

Molly Rector, vice president of marketing and product management for Spectra Logic (www.spectralogic.com), explains how NAS' ability to ease file sharing and infrastructure across the organization can benefit companies. "This minimizes the amount of hardware needed, as well as limits IT staff requirements," she says. "NAS is a great addition to environments that share a lot of files amongst various groups and organizations. It is typically relatively easy to manage and deploy."

On the downside, Rector says, different file systems are required to attach to Linux/Unix environments and Windows environments, and implementation is somewhat limited to the specific environment when compared with block storage, which can be deployed almost anywhere with the right interfaces and tools.

NAS devices come in a wide variety of flavors and configurations, some complete with a range of administrative tools. For example, the NAS-1U-A from ASA Computers (www.asaservers.com) features a Web-based GUI, secured administration access, resource and user access control, user disk quota control, local backup and scheduling, data synchronization, and more.

According to Meyer, when NAS is combined with a product that supports SAN, both file serving and application storage needs can be met simultaneously, helping to leverage one investment even further. Hybrid storage products, such as NAS/SAN appliances from NexiTech (www.nexitech.com), provide iSCSI, Fibre Channel, and SCSI transport.

DAS

Although DAS represents the cheapest of these methods, it also carries multiple disadvantages. This method uses several protocols, including SAS, SCSI, and Fibre Channel, to create systems that provide non-networked storage. Although the potentially low cost and basic deployment can prove attractive to small businesses, the headaches delivered by DAS might not be worth the trouble to some.

"First, it requires downtime to be deployed—and that downtime includes risk," Meyer says. "Second, the new storage is still captive to one application server. It cannot be effectively shared or allocated to another server, user, or need. This means that most admins will tend to overbuy to be safe, [leading to] underutilized storage capacity [and] a lot of empty, extra disks spinning."

In fact, Poelker notes that while the storage utilization in a SAN can be as high as 90%, the typical utilization in a DAS environment is 30 to 50%. However, he says that in most data centers, DAS is still used for internal operating system boot LUNs (logical unit numbers), while SANs are used for database and application storage.

The Big Picture

Choosing the correct method for a particular environment is no easy feat because each method ultimately is designed to handle certain tasks and environments. However, Meyer recommends that SMEs look at products that are flexible enough to handle changes gracefully and address the most pressing needs first.

For example, he notes that many SMEs might struggle with backups that take too long, and in this situation, an NAS server employing disk-to-disk can help solve that problem. The next problem might be a bursting Exchange server, which would require DAS or a SAN. However, an NAS system only for backup and a SAN only for Exchange might be too expensive, and a DAS array delays the Exchange problem until another day.

"Ideally, one storage system can provide file services that can be used to handle backup and restore and application services for the Exchange server," he says. "And guess what? By solving either problem, you have now replaced that aging Windows NT server that is only sharing files. Three birds with one stone and additional options for future growth."

A Few Things To Consider

The prospect of selecting an appropriate storage architecture is bound to cause plenty of head spinning. However, an arsenal of pros and cons can go a long way toward making the right decision, and FalconStor's (www.falconstor.com) Christopher Poelker offers up that list here.

SAN

Advantages

- Increased overall storage utilization
- Centralized backup to shared tape libraries at SAN speeds (now 4Gb)
- I/O performance
- Scalability
- Resiliency
- Disaster recovery

Disadvantages

- Initial cost
- Complexity
- Distance limitation of the cabling

NAS

Advantages

- Simplicity
- Ability to share files over great distances
- Lower initial cost than building out a SAN

Disadvantages

- Not block-based storage, so not as good for database-type applications
- Lower performance than SAN
- Security

DAS

Advantages

- Simplicity
- Lower initial cost

Disadvantages

- Cost in management
- Downtime for expansion
- Backup is limited to direct- or LAN-attached tapes or backup clients
- Total cost of ownership
- Cannot easily cluster servers for application reliability

Is It Time To Replace Your IPsec VPN?

Continued from Page 1

antivirus patches and their versions. You can even configure an SSL VPN to detect other potential security risks, such as Google Desktop. It comes down to how you configure your SSL VPN's policies.

Upfront Analysis

Chris Witeck, director of product management for Aventail (www.aventail.com; as of press time, soon to be acquired by SonicWALL), says, "There are a number of use cases for replacing your IPsec VPN with an SSL VPN." He points to use cases, such as the introduction of mobile devices such as smartphones, and the business model of an organization changing to a more distributed nature with business partners, SOHO workers, and mobile workers all becoming integral parts of company projects and thus requiring access to an SME's corporate network.

Jon Kuhn, director of product management for SonicWALL (www.sonicwall.com), makers of the SonicWALL SSL-VPN, says, "A lot of administrators don't start with a preassessment of remote access needs or getting expectations from the user group." It's important to understand how your internal and external users access your enterprise remotely.

However, in the case of a partner or even consultants and contractors, they don't necessarily need the keys to the kingdom, and you can use an SSL VPN to grant such remote users granular access to your corporate enterprise vs. access to your entire enterprise. SSL VPNs are an ideal access tool for such granular access. Enabling contractor, consultant, and partner access through an IPsec VPN means issuing your own corporate laptop PCs (best practice) or at the very least installing your IPsec client software on their PCs.

Replacing Your IPsec VPN

Replacing your IPsec VPN has both management and economic advantages. "Are you satisfied with your IPsec VPN when it comes to the investment and people?" asks Frank Guerrero, vice president of marketing for NeoAccel (www.neoaccel.com), maker of the NeoAccel SSL VPN-Plus. However, Guerrero also points to pain points in making the move to an SSL VPN, including the determination of network resources to access, mapping them to the SSL VPN, and the need to "Webify" legacy applications (such as those that rely on a Telnet client session), so the SSL VPN can interpret them through a standard browser session. Typically, SSL VPNs include an Active X extension that provides the necessary bridge to the legacy application interface and data.

Guerrero also recommends getting a handle on your IPsec support costs, management costs, and the implications of more users accessing your network remotely through a VPN.

However, Guerrero's experience shows that user adoption of an SSL VPN is graceful by definition because users access network resources through their familiar Web browser vs. launching an IPsec client.

When replacing your IPsec VPN with an SSL VPN, Witeck recommends a phased deployment with pushes to specific devices, whether they are notebook PCs or smartphones. He sees the ideal cases for such a phased deployment, such as an upgrade of devices or the introduction of Windows Vista into your corporate enterprise. Kuhn concurs with the phase deployment approach.

Resource-stressed SMEs looking for an easier VPN solution should spend the time to analyze SSL VPN solutions because it means no deployment of clients, a scalable VPN solution, and reduced management costs, and you can even deploy a single appliance to provide your SSL VPN services.

Risks & Gotchas When Replacing An IPsec VPN

- User education can be a risk and shouldn't be dismissed so readily.
- Don't forget a preassessment of the VPN requirements and speaking to users about their expectations for the new solution.
- Will your homegrown applications and resources work with an SSL VPN? Legacy applications that don't have a Web interface typically perform slower, unless the SSL VPN has an Active X extension in place. SSL VPNs have to read what the application is performing.
- Mapping your SSL VPN to specific network resources for third-party access requires upfront planning and analysis.

Keep An IPsec VPN In Place

Here are some use cases where an IPsec VPN can stay in place:

- IPsec VPNs excel in site-to-site communications, so if it isn't broken, don't fix it.
- IPsec VPN capital investments have not sufficiently depreciated.
- Third-party (offsite) consultants and partners aren't part of your business model just yet.

SPONSORED LINKS

Celestix Networks Whale Security Appliance
Lets Microsoft users set up secure, browser-based remote access on a VPN
www.Processor.com/WSA

NeoAccel SSL VPN-Plus Version 3.0
Offers full IPSec replacement, enabling remote user and site-to-site access without performance degradation
www.Processor.com/VPN-Plus

New West Technologies
We'll audit your network and make recommendations to fortify network security
www.Processor.com/Newestech2

IPsec VPN & SSL VPN In Harmony

Upfront analysis is important when considering the replacement of your IPsec VPN. In fact, there might even be business cases where an IPsec VPN and SSL VPN can live in harmony to serve your remote communications requirements. Thus, talking to your user community, developing business cases, and doing upfront analysis will show if it's time to replace your IPsec VPN or if it's time to add an SSL VPN to secure remote access into your enterprise.

Direct-Attached Storage

Continued from Page 9

devices would have to grow in order to accommodate more storage.

DAS also tends to be more time consuming to manage because IT will have to check individual devices and servers rather than one central system. Also, if using a SCSI, the card that attaches to the DAS has to be physically installed into the server and then the server has to be rebooted, creating downtime during the installation process.

But there are advantages as well; installation itself can be as easy as plugging in a storage device to a server and installing software quickly. And for environments where there are only one or two servers, such as a branch office or telecommuter home, it's easy to maintain.

Where DAS tends to trump its NAS and SAN kin most, though, is through lower pricing and high capacity.

According to Cmaylo, the capacities of SATA drives in particular have steadily gone up and are expected to continue rising. There's talk of 1TB models coming close to production, but in the meantime, there are SATA drives with 500GB starting at $200 from manufacturers such as Seagate (www.seagate.com), D-Link (www.dlink.com), Adaptec (www.adaptec.com), and Network Storage (www.spanstor.com).

"There's much more of a comfort level with SATA drives than in the past," Cmaylo says. "If cost is an issue and there's a specific application for using DAS, then it could be an affordable, practical solution for some data centers."

NAS Technology & Product Update

Continued from Page 10

out of the consumer market with small business products that focus on cost, capacity, and simplicity, albeit at the expense of features and performance.

Interesting New Products

While the industry giants such as NetApp, Microsoft (and its major hardware partners, HP and Dell), and Sun StorageTek (www.sun.com) may be the prime movers behind the unified storage trend, some smaller competitors have introduced intriguing new NAS products with innovative features not yet mainstream.

DNF Storage offers a multitude of storage appliances based on either Windows Storage Server (in its FlexStor line) or an embedded Linux platform (via the DataStor series). According to Product Manager Jame Ervin, both lines feature unified NAS/SAN functionality in an easily configured and managed package. Ervin notes that in addition to supporting both block and file storage protocols, many of the company's boxes can host multiple disk I/O interfaces—low-cost SATA and high-performance SAS—in the same platform. Schulz notes that these hybrid SATA/SAS solutions are starting to appear from more vendors but advises proceeding with caution when deploying what amounts to single-platform tiered storage because there may still be drive integration problems. Another interesting feature from DNF, just recently available as an upgrade option, is support for 10Gb Ethernet interfaces on most of its FlexStor and DataStor products. Ervin believes that the use of iSCSI for block storage makes 10GbE attractive as a high-performance option and encourages customers to plan their storage networks with 10GbE expansion in mind.

Although the unabated expansion of hard drive capacities continues, IT managers still like to make the most efficient use of existing infrastructure. Single-instance storage and real-time compression are two favored approaches for maximizing storage space utilization. While single-instancing or data deduplication are popular techniques for minimizing backup archive sizes, both Reichman and Schulz agree they're not practical for online use due to the need for the extensive analysis of a file's internal structure and contents required to build single-instance metadata—computations that must occur in real time for an online data store. Schulz highlights another approach, compression that has recently become feasible for online NAS applications, noting that an appliance from Storewiz (www.storewiz.com) can compress data on the fly transparent to existing NAS devices. Storewiz claims compatibility with any NAS network or appliance with compression ratios up to 200 to 300%.

While many NAS vendors are adding enterprise-level features and iSCSI convergence, one smaller entrant is also pushing the performance envelope. agámi Systems has incorporated multicore 64-bit processors, now de rigueur on server platforms, in its NAS appliances to increase throughput to a claimed 1GBps on its high-end AIS6000 system. agámi's architecture leverages the AMD (www.amd.com) Opteron's HyperTransport bus to eliminate I/O bottlenecks between the CPU and disk and network controller subsystems, enabling, among other advanced features, real-time file replication between NAS units deployed in a high-availability design. agámi's AIS3000 system, with half the throughput, packs nearly 10TB in a 4U chassis, while the AIS6000 tops out at 24TB in a 5U cabinet.

According to IDC's Yezkhova, the most important requirement of storage systems targeting SMEs is simplicity. "Currently, some of the top vendors do a great job in leveraging their expertise to simplify system deployment and basic storage management functions, such as data migration or backup, to make them seamless, or even invisible, for SMB customers," she says, adding that, "system intelligence should reside inside the box and be managed by the end user through a simple intuitive GUI." While this design strategy of increasing automation and "hiding" intelligence may occasionally frustrate the specialist, Yezkhova believes it's a major benefit for the average, less sophisticated SME user.

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DNF Storage StorBank-XL Family
An affordable hybrid technology (NAS+iSCSI) storage platform that includes features such as NAS share creation, scheduled snapshots, and NAS-based and iSCSI replication
www.Processor.com/StorBank-XL

Nexsan SATABeast
Highest storage density in the industry—up to 42TB in only 4U
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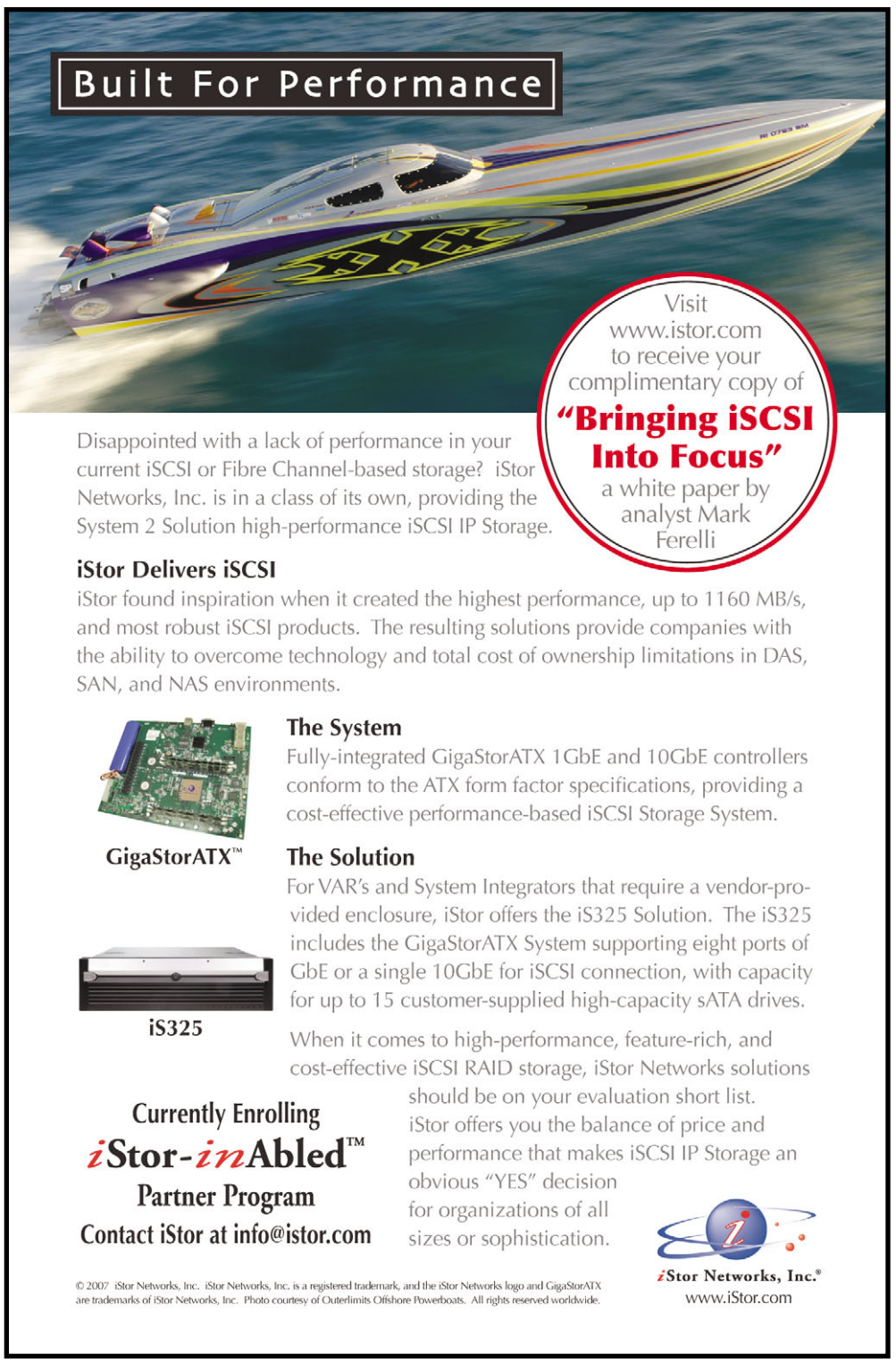

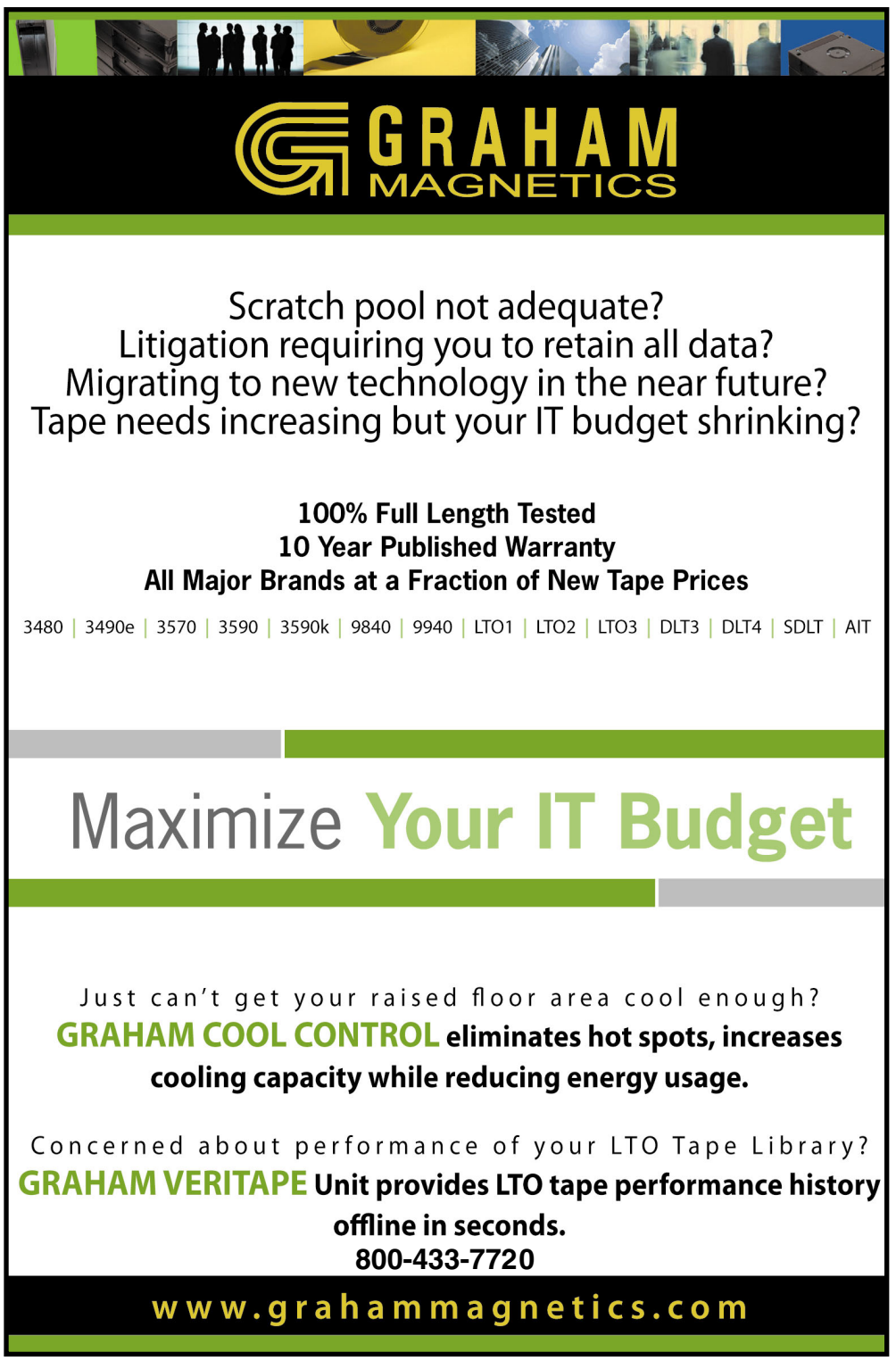

Is Your Network Up To Today's Challenges?

A10 Networks Products Are Designed To Help You Improve Application Performance & Minimize Risks

SECURITY. RELIABILITY. AVAILABILITY. Today's networks demand those things and more, which is the idea behind two of A10 Networks' flagship products: the AX Series and the IDsentrie.

AX Series For Application Acceleration

The AX Series, which recently won the distinctive Best of Interop Las Vegas and Best of Interop Tokyo awards, is the industry's best price/performing application acceleration switch, helping organizations of all sizes maximize application performance and availability. The AX Series is a next-generation server load balancer with an ACOS (Advanced Core Operating System) that is revolutionary by market standards for its multi-CPU architecture built from the ground up that leaps the competition in terms of performance, scalability and reliability. In addition, the AX Series' aRule advanced scripting technology allows for the customization of policies and features, without sacrificing performance.

The AX Series includes:

- Revolutionary ACOS (Advanced Core Operating System) that leverages modern system architectures
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- aRule policy editor allows for customization of features without sacrificing performance
- Industry's best SSL acceleration and L4-7 acceleration
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- High-performance switch/route ASIC, SSL acceleration ASIC, and A10's Flexible Traffic ASIC
- Carrier-grade hardware components in all models

The AX Series application acceleration switch can make users' application responses up to 8 times faster.

Key benefits include:

- Improved user application response times by up to 8 times
- Five 9s reliability for accelerated apps
- The best price-performance per watt in a compact 2U form factor
- The ability to scale server farm capacity by up to 10 times with advanced server load balancing
- Protects application servers from DoS and protocol anomaly attacks with line rate performance
- Ensures application availability for legitimate traffic during malicious attacks

IDsentrie For Network Identity Management

IDsentrie is the industry's first network identity management appliance with instant user identity resolution, which helps organizations of all sizes save time and minimize risk by resolving security issues faster. IDsentrie is built on a flexible, virtual directory model for rapid integration with existing network infrastructure and support for a variety of popular data stores to simplify complex user resource management, and authentication and access issues.

The IDsentrie appliance offers integrated features to simplify identity and access management.

IP-to-ID Service for instant identity resolution: Offers the unique ability to instantly correlate an IP or MAC address to a user identity, allowing IT personnel to immediately take corrective action on security issues.

User Self-Help Service for password and account management: Allows end users to reset passwords and update account information without the need to involve help desk or IT personnel.

Central account management with Unified Identity Manager: Consolidates user information from multiple data stores into a single, manageable virtual directory, providing provisioning, management, and deprovisioning of user accounts from one central interface.

Centralized authentication for simplified sign-on and guest access. Easily integrates with existing account infrastructure to help simplify the authentication process for users and guests and strengthens authentication mechanisms for devices such as remote access servers, wireless components, switches, routers, and security devices.

With IDsentrie, organizations improve their security and compliance requirements by enabling quicker network forensics. Busy IT departments can speed troubleshooting with IP-to-ID Services instantly resolving network issues to the users responsible. System administrators are more productive with Unified Identity Manager's ability to centrally provision and manage user accounts from multiple data stores simultaneously. Employees are more productive with User Self Help Services eliminating the need for help desk engineers to reset passwords and unlock accounts. Security is increased with network authentication and Radius features preventing unauthorized network access. And IDsentrie's rich reporting and auditing features provide full user identity visibility.

A10 Networks AX Series & IDsentrie

The AX is the industry's best price/performing application acceleration switch; the IDsentrie is the industry's first network identity management appliance with instant user identity resolution

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The This Week's Issue page separates articles by section, including Cover Focus, or "feature" articles about a particular data center-related subject; Tech & Trends, which is an assortment of articles covering various issues of concern; and Product Releases, which contains overviews of new products that recently hit the market.

At the bottom of the This Week's Issue page, you'll see a list of all of the article departments, with links to the articles from that week's issue. Simply click the link and you'll see a list of all related articles. Find the article you want and click the link to view the article in its entirety.

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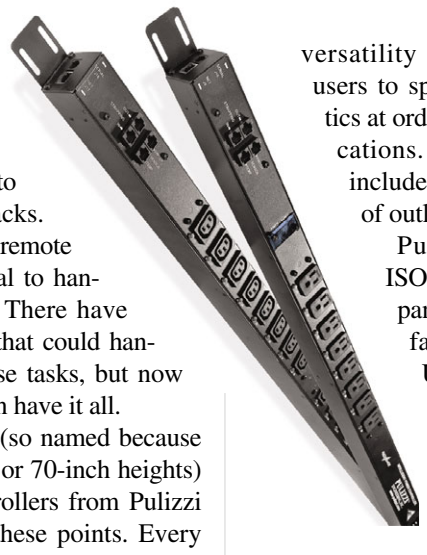
PHYSICAL INFRASTRUCTURE

APRIL 27, 2007

Affordable Power Management With IPV42/70 Series

Power Control & Environmental Monitoring Devices From Pulizzi



EVERY DATA CENTER is confronted with distributing, controlling, managing, and monitoring electrical power to all the devices in its racks. For some IT personnel, remote access becomes essential to handle multiple locations. There have always been products that could handle one or more of these tasks, but now data center managers can have it all.

The IPV42/70 series (so named because they come in either 42- or 70-inch heights) Intelligent Power Controllers from Pulizzi Engineering cover all these points. Every aspect of each outlet can be viewed locally, via a digital meter, or remotely, via Web browser, Telnet, or SNMP software. Out of the box, the IPV42/70 series can monitor voltage and current but, with an optional environmental sensor kit, can be expanded to include data on temperature and humidity. There are additional inputs allowing for integration of switches to detect rack enclosure events, and the software interface is feature-rich.

The software can be configured either to work with SNMP management software by sending traps or to send email alerts when triggered by an event. Each unit, outlet, and sensor can be named in software for a user-friendly interface, and there is a provision for multiple user logins for remote access. Pulizzi Engineering highlights the versatility of this line by enabling users to specify certain characteristics at order to suit an array of applications. Customizable attributes include voltage, current, number of outlets, and connector types.

Pulizzi Engineering is an ISO 9001:2000-certified company that designs and manufactures its products in the U.S. It has a reputation for high quality that has won the company business from many Fortune 500 companies, as well as some government agencies. This quality is evident in its products, which meet objectives and certifications such as RoHS, UL safety specifications, and CE directives.

Pulizzi Engineering IPV42/70 Series Intelligent Power Controllers

Start at $799

Distribution, control, management, and monitoring in a single device

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Z-LINE PULIZZI® ENGINEERING, INC.

PHYSICAL INFRASTRUCTURE

MAY 25, 2007

VISTA Data Center Capacity Management

Aperture Releases A Software Add-on To Measure Consumption & Forecast Needs

DATA CENTER MANAGERS have their work cut out for them when it comes to planning for requirements in floor space, rack space, power, and cooling. The amount of time required to acquire new capacity for a data center can be excessive, and therefore planning is crucial for preventing outages and continuing to deliver services without overburdening existing resources.

Capacity management and planning is important to organizations because of the potential for saving money by increasing the efficiency of their operations. If there is too much capacity available to the data center, expenditures and maintenance will be too high. If there is not enough capacity to the data center, outages may occur and downtime can result, which is also costly. Not having enough capacity can also delay the implementation of new systems and cause schedule problems or failure to meet service level agreements.

Aperture, which specializes in software for managing data centers' physical infrastructure, has released a new software plug-in for its VISTA product, which is a complete data center infrastructure resource management system. Data center managers can now take a proactive stance toward capacity planning because the software gives them the ability to forecast the needs of the data center well in advance.

By taking advantage of the usage forecasting capabilities of the VISTA software, users can also save money by avoiding hazards such as the need for temporary solutions to capacity shortages (leasing space at another facility, for instance). They can forecast when key data center resources will run out, so they can plan ahead and minimize or prevent disruptions. In addition to forecasting future needs based on historical usage, users also have the ability to model planned projects and see their potential impact on existing infrastructure. Users can also allocate capacity within the data center to configurable units for budgeting purposes, which gives an added degree of flexibility.

VISTA is the first full-function capacity management tool. Developed with input from Aperture's Fortune 100 customers, it lets data centers adapt quickly to changing demands and run more efficiently.

Aperture Technologies VISTA Capacity Management

Starts around $30,000

Helps data center managers track and manage capacity at greater levels of detail

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Processor.com's **Find Vendors** area is ideal when you are either looking for a company in your area that sells data center equipment or want to learn more about a particular vendor. The Find Vendors menu (found in the blue bar at the left side of the home page) has three options: Detailed Search, Geographic Search, and View All Dealers.

To perform a search for a vendor that sells a particular type of product or a manufacturer's product line, use the Detailed Search link. On the Detailed Vendor Search page, answer as many of the questions as you want to help narrow your search. Selections include general product lines, specific product types, manufacturer names, and geographic area.

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View All Dealers brings up a list of all the vendors with data center products for sale on Processor.com. Listings appear in alphabetical order. Click the vendor name link to bring up a page with a detailed description of the vendor and the products it sells.

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SECURITY

JUNE 29, 2007

10GbE Intrusion Prevention

McAfee's New Platform For Businesses Moving To Next-Gen Networks

MANY ENTERPRISES have either already transitioned to 10 Gigabit Ethernet platforms or have plans to upgrade infrastructure soon, and security specialist McAfee has made the move a bit easier with the introduction of its first network IPS (intrusion prevention system) appliances to provide up to 10Gbps performance.

McAfee also introduced IntruShield 4.1, the latest release of its intrusion prevention software, which provides enhanced integration with other products in McAfee's SRM (security risk management) portfolio.

"As organizations move to the next-generation 10 Gigabit Ethernet or IPv6 networks, this kind of protection will be critical for them," says John Vecchi, director of product marketing for McAfee. "Many businesses have really struggled to provide adequate protection as the performance in those environments has skyrocketed."

The 10GbE IntruShield platform is believed to be the first to offer 10Gbps performance, Vecchi says. The IntruShield appliance has 16 ports, eight 10/100/1000 ports and eight 10GbE ports, providing the highest gigabit port-density in the market.

The new appliance will provide greater visibility and more relevant data that can be utilized to create a "risk-aware" network intrusion prevention platform, he says, allowing IT and data center managers to make the right decision on network security and act quickly on any problems detected.

The platform has up to 4 million concurrent connections, adaptive rate limiting, dynamic network access control, and built-in, real-time host quarantine. The 10GbE appliance will be available in the second half of this year, with pricing competitive with existing IPS platforms, Vecchi says.

Available as a free download for existing IntruShield customers is version 4.1. The release is designed to better integrate with other products in McAfee's SRM portfolio, including Foundstone, NAC (Network Access Control), and ePO (ePolicy Orchestrator). Closer integration enables enterprises to create a "knowledge-driven" security platform that is automated and enables

network security teams to increase their effectiveness and efficiency, he says.

By integrating IntruShield with Foundstone, a user can get "scan now" functionality that provides real-time threat analysis and details on potential vulnerabilities. Integration with ePO provides visibility into host details, including attacks on the IPS and spyware events with one click.

McAfee IntruShield 10 Gigabit Ethernet

Allows businesses to sync 10 Gigabit Ethernet networks with their security appliances

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NETWORKING & VPN

JUNE 8, 2007

Get A Clear Wireless Signal

MetaGeek Wi-Spy 2.4x Helps Troubleshoot Interference

THE 2.4GHZ BAND is getting crowded, so you need to be able to discern ever-smaller gaps in the noise. That's why MetaGeek developed the Wi-Spy 2.4x—a 2.4GHz spectrum analyzer with an external, SMA-compatible antenna and nine times the resolution of the original Wi-Spy.

MetaGeek's new Chanalyzer 2.1 software offers improved graphics and more powerful controls.

Wi-Spy is the world's smallest 2.4GHz spectrum analyzer. It's so small (and inexpensive) because it harnesses the processing power of the computer you already own. Wi-Spy is perfect for troubleshooting interference from many devices, including Wi-Fi (802.11b/g/n), microwave ovens, cordless phones, and other Zigbee and Bluetooth devices.

With the addition of a reverse-polarity SMA adapter, Wi-Spy 2.4x offers the additional functionality and accuracy of adding an external antenna. The Wi-Spy 2.4x ships with a powerful little antenna, but it's a snap to add any RP-SMA-compatible antenna you choose.

MetaGeek's new Chanalyzer 2.1 software features improved graphics; powerful new play-through controls; and an even friendlier user interface that presents a more clear and concise view of your wireless landscape. Chanalyzer 2.1 supports both the original Wi-Spy and Wi-Spy 2.4x.

Combined with the Wi-Spy spectrum analyzer, Chanalyzer will help you visualize, troubleshoot, and optimize your wireless network at the office or on the road.

Use Wi-Spy if:

- You deploy and maintain Wi-Fi networks (it's perfect for independent wireless consultants)
- Your Wi-Fi has intermittent bandwidth problems
- The microwave interferes with your Wi-Fi network
- Your network connection drops when the phone rings

MetaGeek Wi-Spy 2.4x

$399

A 2.4GHz spectrum analyzer designed for troubleshooting interference from Wi-Fi (802.11 b/g/n), microwave ovens, cordless phones, and other Zigbee and Bluetooth devices

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STORAGE

JULY 6, 2007

Continuous Data Protection: Do You Need It?

CDP Is Now Easier & Cheaper Than Ever Before

THE ERA OF THE SCHEDULED backup is finally coming to an end. Continuous data protection designed for SMEs is here.

NetMass CEO Mark Martin says that his company now makes offsite backup with CDP an extremely affordable option—and with none of the painful deployment.

ServerSafe CDP offers constant capture of all data changes as they happen, allowing point-in-time recovery rather than the traditional approach of a scheduled backup. With CDP you just roll back your data set to the point just before the incident.

With one easy solution, your data is backed up to professionally managed data centers that are disaster-hardened, temperature-controlled, and highly secure and offer exceptional business continuity.

CDP is ideal for:

- Data that changes rapidly
- Applications with shrinking (or no) backup windows
- Applications prone to corruption
- Applications for which a 24-hour window of data loss is unacceptable

"A big difference is that ServerSafe integrates CDP into the backup application, so no additional purchases and installations are needed. This results in significant cost savings," Martin says.

Service charges are based on how much compressed data is stored remotely, which is ideal for SMEs that need CDP for mission-critical applications but need normal backup for files that change less frequently.

NetMass President Stephen Perkins says CDP for Microsoft Exchange is a popular feature. "Email has always been difficult to restore. Partial restores are painful, and restores from tape are unreliable. CDP for Exchange at the brick level, combined with point-and-click restore (from individual emails to the entire Exchange store) now makes Exchange recovery quick and easy. You're up and running in seconds or minutes rather than hours or even days."

ServerSafe features hot backup of Exchange (with message-level restore) and a hot backup of SQL; it also has a built-in capability to allow a local backup copy, in addition to the offsite copy, for speedy LAN-speed restores. CDP is incorporated at no additional cost.

Visit NetMass' Web site or call for a free 30-day trial of ServerSafe or for information on the ServerSafe Reseller Program.

ServerSafe Total Data Protection

Starting at $40 per month

Remote backup for Exchange, SQL, databases, Linux, Windows, Oracle, AS400, and more with CDP for Windows, Linux, Exchange

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Restore and Maintain Peak Performance

Seven things you need to know about fragmentation – a special report

You know the importance of maintaining system performance and reliability. Your team is the one called to the rescue when systems crash, slow down or freeze. Many of these issues stem from a single, hidden source: disk fragmentation.

1. Reliability issues commonly traced to disk fragmentation:

Crashes and system hangs/freezes; slow boot times and boot failures; slow back up times and aborted backup; file corruption and data loss; errors in programs; cache issues; hard drive failures.

2. The weak link in today's computers:

A computer is only as fast as its slowest component. The disk drive is by far the slowest of the three main components of your computer: CPU, memory and disk.

3. Is automatic defragmentation needed in today's environment?

More than ever! Large disks, multimedia files, applications, operating systems, system up-dates, virus signatures — all dramatically increase the rate of fragmentation. Fragmentation increases the time to access files for all common system activities.

4. Increased server uptime:

Fragmentation can cripple server performance resulting in downtime and lost production. Diskeeper can easily and safely be used on your servers including: file and print, web, domain controllers, SQL, Exchange, and any other database or application servers.

5. Virtualization and fragmentation:

Server virtualization can be used to reduce the number of physical systems for more efficient CPU utilization. However, the disk subsystem must now account for increased disk I/O. Fragmentation is the primary cause of unnecessary I/O overhead. Defragmentation is more important than ever for maximum performance.

6. Hidden scheduled defrag costs:

Scheduled defragmentation is not "free" — it has heavy hidden costs, such as IT time to set and monitor defrag for every system. This results in either staying after hours to defrag, giving the users administrator privileges, break-fix handlings, or more often no defrag whatsoever.

7. How do I find out how much fragmentation I have?

Download a free trial of new Diskeeper 2007 at:

www.diskeeper.com/Pro07

Install it, select a volume, select Analyze and view the report.

Every system you manage needs Diskeeper for enhanced file system performance — automatically

Diskeeper 2007
Enhancing File System Performance — Automatically™

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Try Diskeeper 2007 FREE for 45 days!
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Note: 45-day trialware is only available at the above link

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Product Releases

Clients

■ **CoolIT Systems** has introduced its MTEC Control Center, which it says gives PC enthusiasts complete control over the CPU and GPU coolers. The Control Center module uses a USB control board that lets users have software control over the cooling power and fan speeds of multiple MTEC coolers, including the Freezone and Elminator, and future CoolIt liquid-cooling devices. Control Center features include Predictive Cooling, which lets users calculate and adjust for heat buildup based on current CPU usage. The MTEC Control Center is free to download and will let users monitor temps, CPU usage, and access log files and graphical reports. To control CoolIt's MTEC Cooling systems, users need the USB control board for $119.99.

• • • • •

■ **Innovative Routines International** has announced CoSort 9, the latest version of the CoSort database product. It now includes features to prevent privacy breaches and a custom dashboard utility for live monitoring of the network. CoSort 9 uses selective field-level encryption and is compatible with Windows, Linux, and Unix. CoSort 9's SortCL function handles single-pass preprocessing and provides output in CSV and XML formats. Version 9 can import files from CoSort SortCL and integrates data with other sources, such as Excel and ODBC. It also includes custom visual options, such as tables, 3D views, geographic maps, metric tickers, animated speedometers, and ad hoc data displays.

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■ **Kyocera Mita America** announced KYOcapture Express, the latest addition to its suite of document management solutions. KYOcapture Express is a document capture workflow solution that works with select Kyocera MFPs. It enables users to capture documents, index, and OCR documents for full-text searching directly from the MFP, and convert them into multiple formats to route across multiple destinations (fax, emails, network folders, and FTP). When customers are ready to advance to a more comprehensive document capture workflow solution, they can upgrade to KYOcapture, which offers intelligent document capture, processing, and routing to virtually any content management application.

• • • • •

■ **Sanyo** released the LP-XP100L, which with 6,500 lumens achieves the highest portable projector brightness level. The single-lamp projector also features Sanyo's AMF (Active Maintenance Filter) System, which senses the dirtiness of a filter as air flow drops and advances a clean filter to replace the dirty one. A single filter cartridge is good for up to 10 filter changes, or up to 10,000 hours of use.

Networking & VPN

■ **Borland** and **VMware** integrated Borland's SilkCentral Test Manager 2007 and VMware's Lab Manager version 2.5 to enable multiconfiguration and cross-platform software application testing through virtualization. Designed for enterprise software development organizations, customers can open VMware Lab Manager from SilkCentral Test Manager 2007 to create and assign individual tests to run on several different configurations or platforms. The integration allows users to deploy the requested virtual environments, run tests, collect data from the systems, and shut the systems down when completed. Pricing for Borland's SilkCentral Test Manager 2007 starts at $1,700 per seat license for named users.

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■ **Electro Standards Laboratories** has announced the Model 4149 Fiber-to-RS485/422/232 interface converter, which comes in both an encased and board model. The converter was designed for defense applications and can operate in a temperature range of -40 to 85 degrees Celsius. The Model 4149 supports typical operating speeds of 1.5Mbps for RS232-to-fiber conversion and 20Mbps for RS485/422-to-copper conversion. It includes protection circuitry on all receivers and transmitters and has 3kVDC isolation for protection from system ground loops. The 4149 supports input ranges of 9VDC-36VDC. Models are available for other voltage ranges as well.

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■ **Websense** launched Websense Express, software to manage business Internet use, protect organizations from Web security threats, and improve bandwidth. Websense Express is priced and optimized for mid-sized organizations and can be purchased as either software-only or an appliance with Websense Express preinstalled. Websense Express is automatically updated each day to keep customers protected and reduce desk calls caused by computers infected with malicious code. The software includes more than 20 predefined management reports, and Websense channel partners have access to Websense guides that provide existing best practices and services. A Risk Analysis Service is available to analyze Internet activity, identify risks, and provide solutions for improvements in business processes.

Physical Infrastructure

■ **Minicom Advanced Systems** announced the release of Smart 116IP, a digital KVM switch with a simple interface designed for a single user to gain secure remote or local BIOS level access to up to 16 servers. Smart 116IP connects to each server on the rack via ROC (RICC on Cable) dongle technology and a 1U-sized interface.

According to Benny Hayumi, product manager for Minicom, "The Smart 116 IP can be operated seamlessly under Minicom's KVM.net global centralized KVM server management system—making it the ideal digital KVM switch for forward-minded corporations that require a versatile, high-performance KVM switch today and looking to centrally manage their globally distributed servers tomorrow."

Security

■ **Barracuda's** Real-Time Protection updates Barracuda's Spam Firewall for up-to-date protection against viruses and spam. The firewall works with the Internet to identify viruses before they attack your computer by communicating with other Barracuda Spam Firewall users. Upon identification of spam, viruses, or malware, Barracuda updates its database and works to proactively defend your computer in real time, stopping unwanted intrusions before they reach your computer. The Barracuda Spam Firewall begins at $899, and prices vary between models.

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■ **Secure Computing** has uncovered its latest software application, SafeWord MobilePass, which allows users to access VPNs, Citrix, and Outlook, along with many other applications, through one-time passcodes. These passcodes, generated through a personal mobile device or laptop PC, let the mobile workforce stay connected utilizing the devices already in place. MobilePass boosts security through two-factor authentication, which establishes proof-positive identity for all users accessing corporate and consumer applications. Several mobile device platforms are supported with this application, including BlackBerry, Palm, Windows, J2ME-enabled devices, and Windows Desktops, where the passcodes are generated on the user's laptop or PC.

• • • • •

■ **Stonesoft** introduced the latest version of its StoneGate with a new module that unifies IPS and Firewall functionalities, vital components of the StoneGate Secure Connectivity Solution. The StoneGate IPS module detects malicious packets as they arrive at the network perimeter and prevents them from distributing and causing damage. The module offers network administrators more granular control by segmenting network traffic into different security zones or domains, which lets them maintain full access control for all Ethernet activity without having to alter routing and other network configurations. StoneGate IPS version 4.1 starts shipping this month.

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■ **Trend Micro** added several features to its InterScan Gateway Security Appliance. Trend Micro targets the secure content management appliance at midsized organizations. The appliance offers Web and email reputation technology and URL filtering, as well as image spam protection, data leakage prevention, and a Desktop Cleanup service that can remove spyware and malware. The Web reputation technology assigns reputations to Web sites to protect against online threats and zero-day attacks. The appliance protects organizations from behind the existing firewall/VPN. The appliance is available in eight models (IGSA 100, 200, 300, 400, 500, 600, 800, and 1000) and starts at $4,490.

Servers

■ **Tyan** released compact 4-way Quad AMD Opteron products, with the Thunder n3600QE (S4980) board and the Transport GT24B4980 server. The E-ATX Thunder n3600QE (S4980) has four quad-core AMD Opteron 8000 Series Processors and supports DDR2 667/533/400 ECC memory. It has an Nvidia nForce Pro 3600 chipset and sports six SATA ports. The board includes RAID 0/1/10/5 support and has built-in XGI graphics, and dual Gigabit Ethernet ports. The compact Transport is targeted at VOD stream processing, database and IT infrastructure development, and network storage server uses.

Storage

■ **Fujitsu** launched its 2.5-inch External HDD (Hard Disk Drive), which features up to 300GB of storage. The external HDDs are built on the Fujitsu mobile hard disk technology and include an integrated USB 2.0 cable. Because a USB bus powers the drive, a laptop can lend the device the necessary power without external resources. The drive also has a shock mounting design to help protect data by reducing the effect of an impact. Apricorn's EZ Gig II for Windows, Cryptainer, and Second Copy 2000 for backup, encryption of data, and synchronizing of files are included.

• • • • •

■ **iXsystems** says that its Colossus SAN RAID Storage Device can support up to 48TB of current-gen SATA capacity in a 4U rack space and double that amount through JBOD scalability. The appliance offers "True" Dual Active-Active RAID controllers, RAID 6, and on-the-fly LUN and RAID expandability for fault tolerance and maximum uptime. Fibre Channel interfaces provide up to 16Gbps of continuous data transfer speed.

OPINIONS

THE • LAST • BYTE

Do I Have My Stuff? Does Someone Else Have It, Too?

Security and data protection are two of the most sought-after attributes for enterprise storage today. In this article we will look at a USB device offering password protection and data encryption. We will also look at two portable hard drive devices for mobile applications, such as laptop backup on the road. Finally, we will look at a just-announced storage device for small offices and homes that provides very powerful and flexible data protection and availability.

USB Drive Provides Mobile Security

USB interface portable storage devices using flash memory or small hard drives are a part of every digital professional's life. With today's concern with data security and privacy, encryption on these devices is a next obvious step. Recently, I had a chance to evaluate a USB flash memory device with 2GB storage capacity from Kingston (Data Traveler Secure). This product offers hardware encryption, partitioning, and password protection. Maximum read speed is 24MBps, and maximum write speed is 10MBps. The product is also fast enough to meet the Windows Vista ReadyBoost requirements.

I found the product to be a good physical size for my use. The metal casing provides protection from normal use. For Microsoft Vista and SP1 or higher XP, the device offers password access control for a private data storage area, utilizing 256-bit advanced encryption standard hardware encryption. This private area of the flash memory protects the data from unauthorized access. Software sets up an area on the flash memory requiring password access and a way to organize content, set language preferences, and synchronize files with the host device. This product is definitely useful for protecting data for a person on the go.

Protecting Your Data Wherever You Go

I have had a chance to use a couple of external 2.5-inch hard drive storage products over the last few months, and I found that they were useful for backing up my laptop and taking data off my laptop drive to save space on the road. One product is a Maxtor OneTouch III Mini Edition, and the other is an HP Pocket Media Drive. Both devices are useful for data protection and file access when on the road since they both work off of the power provided by the USB cable.

I highly recommend that you have a backup device storage capacity that is bigger than the capacity of the computer that you are protecting, particularly if you wish to back up and do file synchronization. If you are constrained on storage capacity, you can compress the backup files.

The Maxtor OneTouch III Mini Edition (now produced by Seagate) provides manual or automatic backup to the 2.5-inch hard drive contained in the sleek external box. A single button on the device allows quick access to the EMC Retrospect backup software, allowing complete or partial computer backup as well as full file synchronization whenever the OneTouch is attached to the computer. Maxtor Drivelock provides password protection of the contents of your OneTouch. The Maxtor OneTouch was easy to use and did the job it was designed for quite well.

The HP Pocket Media 2.5-inch drive module was designed to be plugged in to HP desktop computers to provide increased storage capacity. These devices can also be used to move files from one computer to another using the USB 2.0 connector. These external USB drives come with Sonic BackupMyPC software that allow computer backup. The Pocket Media Drive comes with a handy padded plastic carrying case with two pockets, one to hold the drive and a mesh pocket to hold the USB cable. I use my Pocket Drive regularly to offload extra files as well as carry additional files with me.

Let Your Robot Do The Backup

Data Robotics just introduced its Drobo data robot. Drobo is an external USB black box with space for two to four hard drives. You can use disk drives of different capacity, and if a drive is replaced, the Drobo doesn't skip a beat. The Drobo drive array automatically reconstructs the data on the new drive. The product is easy to install using software on a provided CD, and it shows up looking like another hard drive.

Since there is redundancy, the available storage capacity appears to be about 34% less than the aggregate storage capacity of the hard drives. Since the hard drives are simply plugged in to the Drobo box to add capacity or change a drive, it is easy to increase storage capacity by swapping disk drives in the array. A set of four LED displays gives the status of the drives: green for fine, yellow for filling up and needing more capacity, and red for crashed. I have seen this product in development for the past two years, and it is good to see it finally hitting the market. Drobo offers attractive features for small office or home backup and file sharing not available on other storage products geared to this market.

Send your comments to tom@processor.com

TOM COUGHLIN

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- Hold up Time: 20mS minimum, at full load
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- Power Good: 200 to 500 ms, TTL compatible
- Cooling Fan: 38x38x28 mm
- Operating Temperature: 0 to 50 ºC (for EFRP-4463); 0 to 40 ºC (for EFRP-4553
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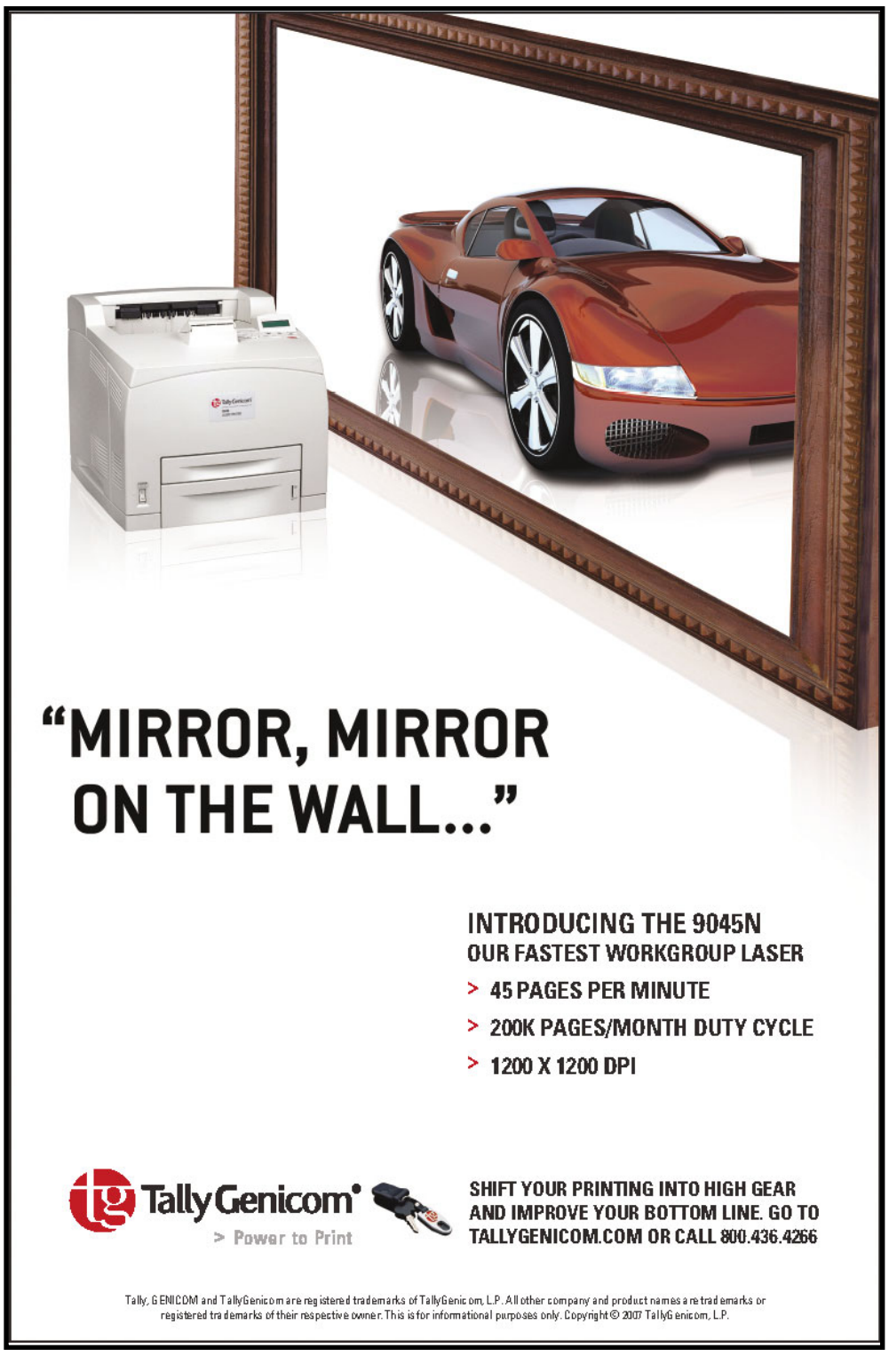

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PRODUCTS AT WORK

Storage Solutions With Room To Grow

Pivot3 Can Store Many Terabytes Of Data In A Single Array

by Julie Sartain

• • •

ACCORDING TO THE research firm iSuppli, video surveillance is increasing about 13% a year. Because the technology has finally evolved to adequately support this data-storage-intensive task and it's so much more affordable now, new companies are getting on board every day. However, evolution and progression always come with challenges that require real-world solutions.

The Challenges

Video surveillance cameras can run 24 hours a day, seven days a week. One camera running 10fps at 640 x 480 resolution in a busy location such as a turnstile in a New York City subway can, conceivably, capture about 1GB of video an hour. Multiply that by 24/7 and then again by 100 turnstiles/cameras, and you get 16,800GB a week (or 72,000GB a month).

Video surveillance—like some of the other tasks that require massive data storage—has moved beyond terabytes of storage to petabytes of storage. (1PB is 10245 or 1,125,899,906,842,624 bytes.) The obvious challenge when dealing with this much data is how and where to store it; how to make it available to customers on demand; and how to easily, without performance impact, make it dynamic (to expand and evolve as the business grows and progresses).

"We used to aggressively prune our customers recordings (that is, delete recordings older than 30 days) in order to preserve storage space," says Rick Bentley, CEO of video surveillance company Connexed (www.connexed.com). "Cost-effective and easy-to-add storage would allow us to prune much less aggressively and offer our customers longer storage times at lower costs."

Solutions

Connexed was looking for a scalable and reliable system that cost less than the incumbent SAN or other solutions, notes Bentley. "That's why we purchased the Pivot3 RAIGE Storage Cluster. It can store hundreds of terabytes of data in a single array. Further, given the distributed nature of our system's architecture, adding more boxes meant adding more CPUs. Unlike some products, the Pivot3 RAIGE Storage Cluster does not get slower as storage is increased."

"Our architecture allows us to scale to hundreds of thousands of locations and millions of cameras," continues Bentley. "To do this, we're talking about storage needs in petabytes and higher, not terabytes. The Pivot3 system not only 'RAIDs' across drives, but it also 'RAIGEs' (RAID over Gigabit Ethernet) across boxes. In case of failure, data is not lost, and service is not interrupted." This patent-pending technology provides up to five times the streaming throughput and twice the storage capacity of its competitors.

Connexed considered other solutions before it selected Pivot3. "We tried everything from NAS to SAN to our own homegrown solution," says Bentley. "Our homegrown solution is similar in architecture to Pivot3 (distributed storage over Ethernet, etc.), but the Pivot3 solution is much more robust in its implementation, and we had no desire to reinvent the wheel."

"Our solution had a bunch of boxes that distributed the storage needs over fast Ethernet switches—Pivot3 does the same thing but does it better by RAIDing not just across drives within boxes but by 'RAIBing,' if you will, the data across multiple boxes. With their solution, any one box can die, and the data set is maintained. In our solution, losing a box meant temporary loss of read capability for the data on that box. The Pivot3 solution means no loss of anything. But both solutions use Ethernet (as opposed to SAN or direct-attached) for the storage."

Bentley also found that Pivot3 is a good company to work with, and its technology is very well thought through. Connexed's IT department has a "No Microsoft" policy at the NOC (network operating center), mostly for security purposes (and, in part, because they are Linux geeks). "But after reviewing their implementation of the Pivot3 control box, which happens to be Windows-based, our team was comfortable adding it to our environment," Bentley says.

How It Works

"The Pivot3 RAIGE Storage Cluster breaks the limit of physical RAID devices by using a totally virtualized environment," says Jeff Bell, vice president of marketing at Pivot3. "With RAIGE, data is distributed, protected, and accessed in parallel across multiple Databanks connected via common Gigabit Ethernet. This virtual architecture allows performance and capacity scaling along with flexible and dynamically changeable data protection levels and volume definitions."

"Databanks (that is, nodes in a clustered storage array) are added linearly to scale capacity to hundreds of terabytes, allowing enterprise scaling with affordable SATA drives," continues Bell. "Each Databank adds processing power, cache, and network ports contributing to an overall increase in performance and bandwidth. Connexed started with three Databanks totaling 8TB and adds more as the need arises."

According to Bentley, the implementation of the Pivot3 RAIGE Storage Cluster was completed in a single afternoon. "We installed a driver in the OS of the boxes that needed to access the storage solution, did some GUI-based configuration on the included management console, and we were done," he says. "After that, the storage array showed up as a local drive within the OS of the relevant boxes. We spent more time racking the boxes than we did getting the rest of the system working."

The resulting solution is more secure and easier to use than a DVR/NVR solution, notes Bentley. Connexed's onsite appliance manages the broadband connection and gets the data offsite as the upload bandwidth allows and then monitors the hardware chain to report any equipment failure in the field. (For example, if a camera or appliance goes down, a pure onsite system can't notify anyone of a problem if it gets unplugged.)

All the recordings are cached locally and uploaded as the broadband connection allows. If the broadband connection gets busy or goes down, the video is cached locally until it comes back. This way, the peak upload demands are "smoothed out," and all fit into the available broadband connection.

The Pivot3 solution is well-suited for these types of intensive, bandwidth-hungry applications. The flexibility of the virtualized storage infrastructure easily supports dynamic environments with changing workloads and growing capacity and performance needs, adds Bell.

Future Plans

For Connexed, Bentley says that future plans include to grow current Pivot3 implementation to its natural limit (500TB) and to add more instances of the Pivot3 solution as required. Connexed's database cluster is still using DAS (RAID 5); when it outgrows local-attached, the database cluster will have its own Pivot3 instance.

"The Pivot3 RAIGE Storage Cluster worked as well as we had hoped and better than we had planned. It solved all of our storage problems," notes Bentley.

"[The Pivot3 RAIGE Storge Cluster] can store hundreds of terabytes of data in a single array."

-Connexed's Rick Bentley

Pivot3 RAIGE Storage Cluster

This patent-pending technology provides up to five times the streaming throughput and twice the storage capacity of its competitors.

"The Pivot3 RAIGE Storage Cluster worked as well as we had hoped and better than we had planned. It solved all of our storage problems," says Rick Bentley, CEO of video surveillance company Connexed (www.connexed.com).

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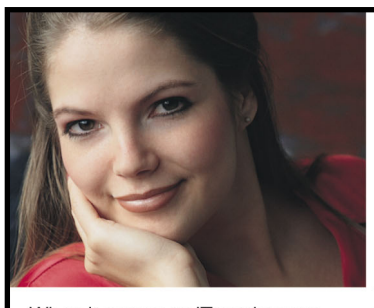

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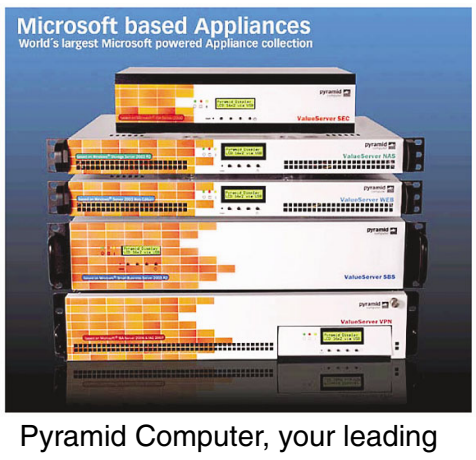

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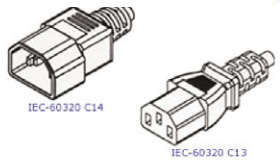

Item	Length	Amps	Gauge
1540	8 inch	10A	18/3
4663	1.5 foot	10A	18/3
1736	2 foot	10A	18/3
7691	2.5 foot	10A	18/3
5413	3 foot	10A	18/3
1775	3.5 foot	10A	18/3
2965	4 foot	10A	18/3
1778	4.5 foot	10A	18/3
3262	5 foot	10A	18/3
9160	5.5 foot	10A	18/3
5612	6 foot	10A	18/3
3220	6.5 foot	10A	18/3
1228	7 foot	10A	18/3
2986	8 foot	10A	18/3
4671	1 foot	13A	16/3
4403	1.5 foot	13A	16/3
4670	2 foot	13A	16/3
4142	1 meter	13A	16/3
8037	4 foot	13A	16/3
2832	6 foot	13A	16/3
7365	1 foot	15A	14/3
4962	1.5 foot	15A	14/3
1965	2 foot	15A	14/3
7231	1 meter	15A	14/3
1529	4 foot	15A	14/3
7415	5 foot	15A	14/3

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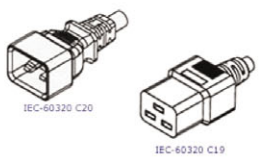

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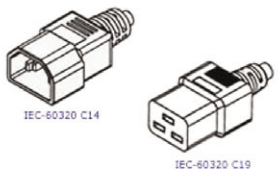
3101	2 foot	20A	12/3
2992	3 foot	20A	12/3
3002	4 foot	20A	12/3
7784	5 foot	20A	12/3
2928	6 foot	20A	12/3
1007	2.5 meter	20A	12/3
7995	3 meter	16A	12/3
3779	3 meter	20A	12/3

AC Power Cord IEC 60320 C14 Plug to C19 Connector 250v Black



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9430	2 foot	15A	14/3
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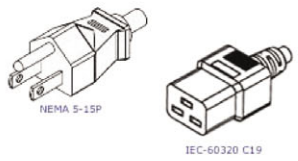
9429	4 foot	15A	14/3
6154	4.5 foot	15A	14/3
9428	5 foot	15A	14/3
4586	6 foot	15A	14/3

AC Power Cord NEMA 5-15P Plug to C19 Connector 125v Black



Item	Length	Amps	Gauge
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8826	3 foot	15A	14/3
9118	5.5 foot	15A	14/3
1409	8 foot	15A	14/3
8723	14 foot	15A	14/3

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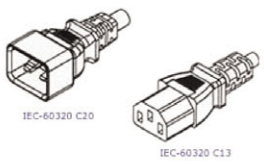

Item	Length	Amps	Gauge
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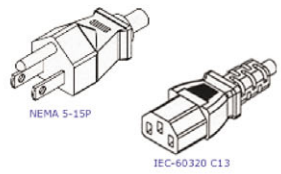
8047	2 meter	15A	12/3
9157	2 meter	15A	14/3
4177	6 foot	10A	H05VV-F 3G1.5
9183	6 foot	15A	14/3

AC Power Cord NEMA 5-15P Plug to C13 Connector 125v Black



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2996	1.5 foot	10A	18/3
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3858	3 foot	10A	18/3
7232	4 foot	10A	18/3
1063	5 foot	10A	18/3
6085	6 foot	10A	18/3
8797	7.5 foot	10A	18/3
4680	8 foot	10A	18/3
4679	10 foot	10A	18/3
5444	12 foot	10A	18/3
2966	15 foot	10A	18/3
3581	20 foot	10A	18/3
1394	25 foot	10A	18/3
7983	1.5 foot	13A	16/3
3284	2 foot	13A	16/3
8778	1 meter	13A	16/3
1597	3 foot	13A	16/3
6755	4 foot	13A	16/3
8829	5.5 foot	13A	16/3
8779	2 meter	13A	16/3
2889	6 foot	13A	16/3
7853	8 foot	13A	16/3
8780	3 meter	13A	16/3
7238	10 foot	13A	16/3
7534	20 foot	13A	16/3
3268	1 foot	15A	14/3
2133	1.5 foot	15A	14/3
3267	2 foot	15A	14/3
8612	1 meter	15A	14/3
8874	3 foot	15A	14/3
1795	4 foot	15A	14/3
8831	5 foot	15A	14/3
8605	2 meter	15A	14/3
2888	6 foot	15A	14/3
1924	8 foot	15A	14/3
8611	3 meter	15A	14/3

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Know When To Retire Storage Tape Media

Monitoring Solutions Let You Take Action Before It's Too Late

by Bruce Gain

• • •

THE LIST OF PROS and cons to take into account when deciding whether to rely on tape instead of disk storage is long, but cost and low power consumption weigh in tape's favor. Disk storage may be robust and offer many redundancy possibilities to safeguard data; however, tape represents lower data center infrastructure costs, measured by electrical power and floor-space requirements.

"As regulatory compliance and risk management drive potentially massive storage volumes, disk tends to be the status quo," says James Governor, an analyst for Redmonk (www.redmonk.com). "But from a cost and green perspective, it makes a great deal of sense to use tape as part of a broader backup and log management analysis story."

But while tape storage may be reasonably reliable, IT admins are often wary of how storage redundancy and other measures are still not the perfect means to ensure that tape data is never lost or damaged. Besides the costs associated with replacing damaged cartridges or tape, data recovery is a very expensive process, while, of course, there is always the possibility that the data your enterprise is required to store by law under compliance rules ends up being lost forever.

"Identifying problems before they happen is a worthwhile goal for any organization. Data centers are no exception," says Peter Groel, president of MP Tapes (www.mptapes.com). "The cost of a backup failure is lost time; the cost of a restore failure can be immeasurable."

But before the unthinkable happens—losing vital data—some suppliers say they have developed solutions that actively gauge and monitor tape media's state of health. Chip-based solutions can, for example, analyze tape media and alert administrators about bad sectors so they can take action before it's too late.

"Many [tape] failures can be avoided with inexpensive and easy-to-use devices that access the cartridge memory (CM). They can either identify cartridges that are approaching the end of their usable life or tape drives that require maintenance," Groel says. "These devices come with software that processes the information and gives the user clear and precise information. With the availability of such inexpensive tools that reveal the cartridge quality, there is no longer any reason to blindly trust a data cartridge."

Intelligent Cartridges

Components can potentially offer an abundant amount of information about the history and condition of cartridges and tape. A cartridge memory chip, for example, can indicate the amount of data, number of writes and insertions, errors, and other information about a cartridge and tape.

"A statistical record of the cartridge quality, if it exists at all, can easily vanish when the cartridge is moved. The cartridge memory chip, however, is an integral part of the cartridge," MP Tapes' Groel says. "The statistical data contained in the CM can be accessed and the cartridge quality assessed anywhere, whether the cartridge is in a data center, in an offsite storage vault, or at a remote data collection site."

MP Tapes' solution, for example, offers a single score number that evaluates tape media. It automatically calculates a tape evaluation score ranging from 0 (very bad) to 100 (very good). This, the company says,

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Disk storage may be robust and offer many redundancy possibilities to safeguard data; however, tape represents lower data center infrastructure costs.

Factors Impacting Tape Life

Like wear-and-tear and the number of miles driven factor into the likelihood of how long a car will continue to run, variables that are archived on a memory chip can indicate how close a tape cartridge is to permanent failure. Knowing when to retire a tape involves taking into account such data as error statistics, amount of data written and read, number of mounts, and the age of the cartridge. MP Tapes' (www.mptapes.com) memory chip automatically takes all of these variables into account and assigns a total score that indicates when a cartridge is reaching the end of its life cycle and is ready to be retired.

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The True Cost Of Printing

How Much Are You Really Spending To Produce Paper Documents?

by Paul Ferrill

• • •

While printing documents has become passé to computer users, most don't even give a thought to how much it costs to get a color copy of a PowerPoint masterpiece. The facts can be somewhat daunting, especially when you factor in maintenance and replacement costs. Choosing the right printer for the job can make a big difference in your overall costs.

HP (www.hp.com) has years of experience with printers for all different types of printing applications. Its LaserJet printer, introduced in 1984, was the first laser printer for IBM-compatible personal computers. The company now offers a wide range of laser printers for every application from the home to high-volume print shops.

Consumables determine the largest part of the long-term costs of printing, especially when it comes to color copies. A typical single printed color page can cost anywhere from 20 cents to more than $1, depending on the amount of toner or ink coverage. HP has an online Print Cost Calculator that lets you compare the cost of printing a color document in-house vs. sending it out (www.hp.com/sbso/productivity/color/print_cost_calc.html).

Choices

Laser printers have long been the standard for most common business printing needs, while inkjet printers have been relegated to small workgroup environments and specialty format printing. For high-volume black-and-white printing, the laser printer is hard to beat in terms of cost and speed.

Konica Minolta (konicaminolta.com), along with SYNNEX (www.synnex.com), offers a service called Managed Print Services. Features of this service include a known cost-per-page, including specific hardware, scheduled supply shipments, and preventive and periodic maintenance. HP Managed Print Services offers similar capabilities for customers, as well, along with a wide variety of consulting services to address specific printing needs.

While inkjets might be OK for small offices, they may not be the best for a small to midsized enterprise. Vince Londini is a research analyst covering the printer space for Info-Tech Research. "We are recommending to our small to medium enterprise customers that they get rid of their inkjet printers. The cost of maintaining inkjets just doesn't add up for most businesses of this size," says Londini.

Keeping Up

Many organizations put the responsibility for keeping a printer loaded with paper and replacing the toner cartridge on those that use it. That translates into tracking down the right toner cartridge to get your important document printed just when you don't have the time to do one more thing.

While this might not seem like much, it does cost your company the time value of the employee that had to find the toner cartridge. HP offers several tools for both monitoring the consumable levels of its printers and reordering supplies when necessary. Easy Printer Care is a free application from HP for managing up to 15 printers and tracking consumable levels.

"Determining the true cost of printing for your organization won't happen until you can accurately measure it. Network printing offers the opportunity to implement measurement and monitoring down to the user level to determine both overall and user-based costs," says Londini.

Gathering data from the standard Windows print queue utilities will give you some basic information but might not have everything you need to make a good assessment. Optio Software (www.optiosoftware.com) is one company offering an

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Saving Money On Printing

Buy the right printer for the job. Laser printers make the most sense for the majority of printing needs, while remote/branch offices could be well served by a multifunction device, combining inkjet printing, scanning, and fax capabilities in a single device.

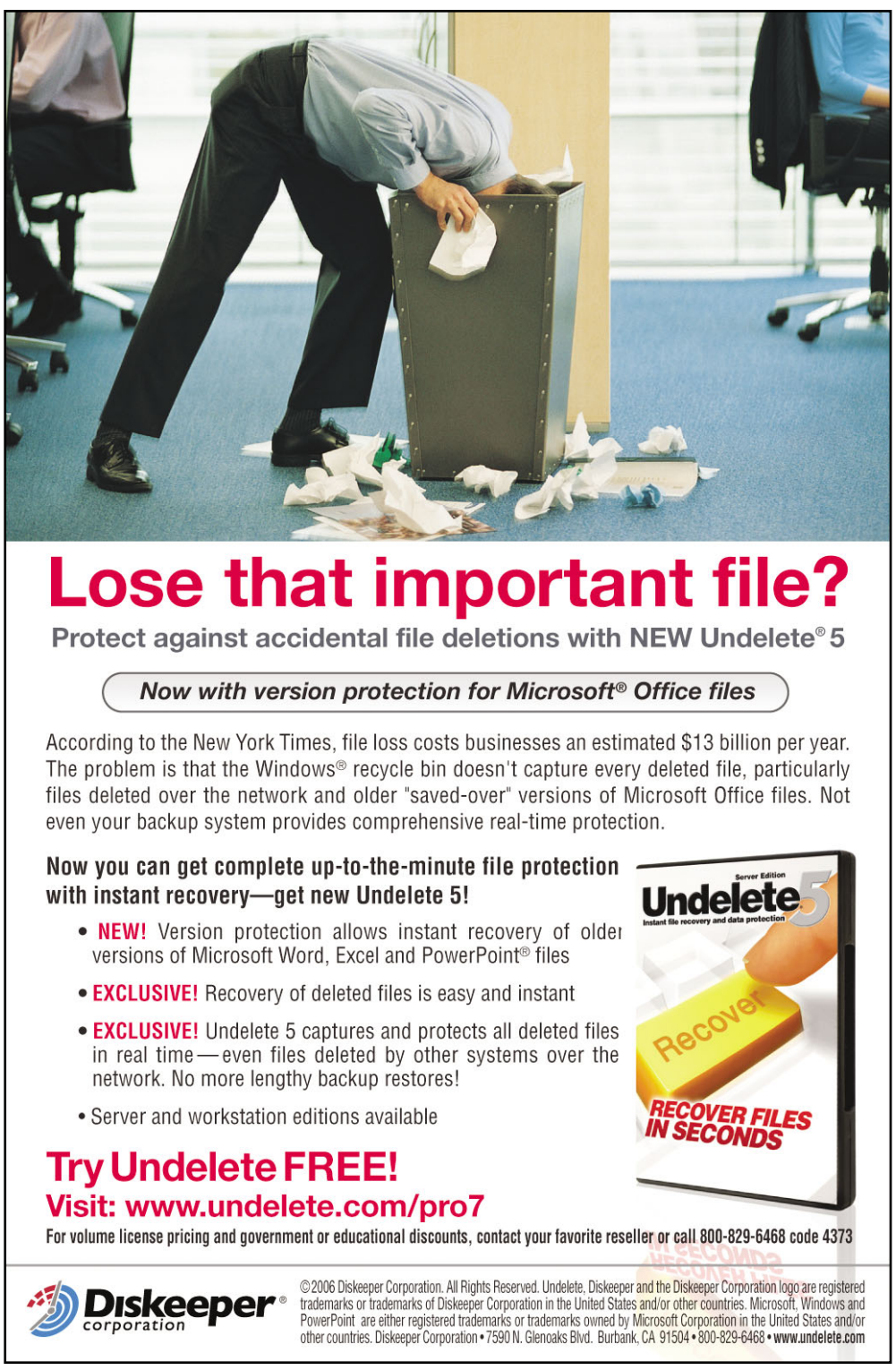
Standardize on specific model printers to save costs on consumables. As with many other products, you can receive discounts when you buy toner cartridges in bulk. This won't help if you must purchase multiple types of toner or try to maintain a wide variety of printers.

Automate your support. Tracking simple things such as periodic maintenance works best when you have some type of automated tool, such as HP's Easy Printer Care application or Optio Print Manager to help. Keeping up with number of pages printed will help quantify your costs in a more concrete fashion.

SME Printing Facts From HP

- The SME market continues to grow faster than any other segment.
- There are more than 6 million small to medium-sized businesses in the United States (plus 35 million home offices).
- There are more than 25 million printers in use (plus 36 million printers in home offices).
- In the last 12 months, SMEs spent about $3.5 billion on printers and $3 billion on supplies (ink, toner, paper) in the United States.
- HP is the No. 1 provider of printers to small and midsized businesses worldwide.
- 75% of SME printers in the United States are from HP.

Sources: 2005-6 AMI U.S. Small/Medium Business Overview September 2005; 2006-9 AMI Global Market Overview; 2005-2009 IDC U.S. Home Office Forecast May 2005; New Business Owners: Addressing the Engaged Segment, SMB Marketing, April 7, 2006



Bursting At The Data Center Seams

The Demands Of Digitized Business Are Pushing Data Centers To Capacity Faster Than Ever

by Sandra Kay Miller

• • •

STAYING COMPETITIVE has resulted in explosive growth in the data center. Moving far beyond email, just about every facet of the enterprise has become digitized as well as mobile. New applications, such as customer relationship management, enterprise resource planning, call centers, Web properties, streaming video, and Voice over IP are all demanding space in the data center.

Although growth is good, rapid expansion in the data center presents a number of challenges few businesses consider until they surpass the limiting factors of space, power, and cooling. According to an IDC survey that tracked worldwide server install base, new server spending, and power and cooling expenses since 1996, power and cooling have lagged, leading data centers to struggle with adequate power and cooling for their current technology deployments. Since 2002, spending for new servers in the United States has steadily risen by $10 billion, but power and cooling spending has increased by nearly $40 billion as the install base has more than doubled during the same period of time.

"We're seeing a tremendous amount of servers: huge blade server chassis, floor-standing servers, and certainly acres and acres of rack-mounted servers. I think it's being driven by a variety of applications that are core functions of the enterprise—there's Web; there's email; there's CRM. It's coming from every direction," says Anthony Wanger, senior managing director of i/o Data Centers (iodatacenters.com), a company that designs, builds, and operates Tier 3 and Tier 4 outsourced data center facilities. According to Wanger, this rapid growth isn't limited to one particular segment of the economy: "We have healthcare systems, law firms, very large corporations, Web properties—it's really a variety."

While the number of servers is growing, the technology itself has also evolved into 1U blades, meaning that more servers can be packed into the same space. Ron Hughes, president of the California Data Center Design Group, points out that this shift has elevated power and cooling requirements from the 60 to 80 watts per square foot to 150 to 200 watts per square foot. "A lot of people are finding their data center can no longer support these loads," says Hughes.

Benefits Of Outsourcing Your Data Center

i/o Data Centers (iodatacenters.com) lists the top reasons to consider outsourcing your data center:

- High availability
- More flexible and scalable to changing business needs
- Providing space, power, and cooling requirements is their core business
- Infrastructure and services availability
- Increased service levels
- Fully trained and dedicated staff onsite
- More contractor oversight and management
- No more constant upgrade cycles

Going Green

Increasing density translates into greater power and cooling requirements, which often dictate the data center's threshold. Recognizing this, researchers and manufacturers are working to create more energy-efficient technology and better cooling solutions.

During the past 18 months, Intel (www.intel.com) has been working with Sandeep Gupta, an associate professor in the Department of Computer Science and Engineering and the iMPACT mobile computing lab at Arizona State University to develop leading-edge energy and cooling solutions for the data center. Their research covers everything from basic environmental controls, such as cooling methods, to abstract technical methods, including optimal thermal scheduling algorithms.

During the course of research, Gupta pointed out that the majority of data centers often fail to utilize their servers' full potential, leading to excess hardware, which in turn generates more heat, requiring more cooling. In order to optimize data centers, Gupta suggested energy load-sharing and server virtualization.

IBM (www.ibm.com) will be putting server and storage virtualization and energy-efficient power and cooling systems into action in its $86 million expansion of its Boulder, Colo., data center, which will be more than 300,000 square feet of high-density data center space. According to Rich Lechner, IT Optimization vice president, IBM's goal is to double the capacity of its data center by 2010 without increasing energy usage. Also this year, IBM announced Project Big Green, which aims to spend $1 billion each year to increase IT energy efficiency both for itself and clients.

HP (www.hp.com) is also getting into the green lane by introducing a new line of energy-efficient storage solutions, including new disk arrays designed to reduce power and cooling costs in data centers by as much as 50%.

Growing in popularity with data centers of all sizes, outsourcing lets organizations focus on their core business instead of struggling to support the underlying technology.

Facing Reality

Regardless of efficiency, to sustain a growing data center, at one point or another an organization will be faced with the decision to either expand existing facilities or build new. One of the pain points Wanger regularly encounters is the overwhelming complexity organizations encounter when they look to address the increasing infrastructure needs to support the digitization of their business. "It's much harder to run a high-availability data center that's under construction as opposed to one that's in pure production," says Wanger. "Most data center managers hate the thought of construction in their own data center, and it carries a lot of risks."

Building a new data center also takes lots of time. "Most of our clients aren't in a position to wait two years. They also can't accurately estimate what their load will be in a couple years," Wanger notes.

A third option is to outsource. Growing in popularity with data centers of all sizes, outsourcing lets organizations focus on their core business instead of struggling to support the underlying technology. Wanger lists a number of advantages when it comes to outsourcing. "I think first and foremost is the focus of dedicated people. In a lot of companies, there's nobody responsible for the data center. Instead, it's a conglomeration of multiple departments—facilities, procurement does the buying, IT does the computers, but someone needs to be responsible for the security, availability, power, access, network, the physical plant, the maintenance. These are complicated systems; like a car, they need to be maintained and watched."

Especially in smaller enterprises, Wanger believes that most organizations don't have the resources to effectively monitor their own data centers. "We have a guy who walks around every four hours looking for smell, humidity, checking local alarms, just hands-on maintenance of the data center, and I think that's really the biggest benefit of outsourcing."

Data centers will remain the engine driving the digitization of business; however, both enterprises and vendors are realizing the technology under the hood must become more efficient to sustain ongoing growth.

Know When To Retire Storage Tape Media

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allows an administrator to know "within seconds" whether a cartridge is reliable.

Taking Action

The data derived from the cartridge memory chip also allows admins to pinpoint problems. The cartridge memory chip, for example, can indicate the identity of tape drives that have accessed a cartridge. If a tape backup system is not functional, it's possible to determine whether the problem is due to the tape or the drive. "By comparing these records, it is simple to determine if it is the cartridge or the drive that is failing," notes Groel.

Some solutions track tape media by relying on barcodes and other archival systems. TOLIS Group (www.tolisgroup.com), for example, offers management components that track tapes by the unique ID assigned to the first archive written to a tape, says company President and Chief Technology Officer Tim Jones.

"In the event that a tape is overwritten, we update our record for that tape with the new archive's ID. As part of this, we also track the number of writes, current number of archives, current amount of data, and amount of data written for the tape's lifetime within our environment," Jones says. "As for tracking the media content, we store our archive catalog information on the tape with the archives and in a disk-based database. Additionally, our manual method allows us to easily correlate barcodes and archive content at the catalog level."

However, Jones says the TOLIS Group's solution is better geared for never-used-before tape. "This may not be the perfect solution in environments where previously used tapes may be recycled from other backup applications since we don't know the history of the tape in the alternate environment," says Jones. "Since most of our customers use new tapes when implementing our solution rather than recycling old tapes, that scenario is not one that we run into often."

What A Cartridge Chip Can Reveal

A memory chip can offer a wealth of information about the history and condition of a tape cartridge. Information about the cartridge that is automatically updated in real time includes:

- The amount of data stored on the tape
- Date of manufacture
- Last upload
- Number of writes
- Number and types of errors

The True Cost Of Printing

Continued from Page 25

advanced print management tool with the kind of information you really need. Optio Print Manager uses a centralized graphical management console for monitoring and controlling printers across an enterprise. It installs on Windows-based servers and fully integrates with the native print spooling functionality.

Bottom Line

If your organization doesn't currently use server-based printing, you'll need to implement some method of measuring your printer output if you want to have any chance of accurately determining your true costs. You'll also need to track any labor hours directly related to administering or maintaining your printers.

Consumable costs should be relatively easy to track if you tie them directly to specific printers. Londini of Info-Tech recommends you track your costs for a month to establish a good baseline. "Make sure you pick a typical usage month to monitor your costs and not one that would include either high or abnormally low volume," he says.

Once you have a good sample of a typical month's usage, you can analyze subsequent months to spot any activity outside the norm. You don't really need anything more sophisticated than a simple spreadsheet to help gather and display the information month over month.

WHAT'S HAPPENING

Supermicro's Emerging Server Architecture

Scalability, Performance & Quality Are Key Ingredients For Its Success

by John Brandon

• • •

IT'S CERTAINLY A lofty goal for server administrators, but pushing a data center beyond the limits of standard server architecture has many tangible benefits. One is that applications run faster for business users, which means the business itself is running faster. With optimization and better performance come more reliable, well-tuned systems that require less maintenance and additional hardware upgrades down the road. And optimization is a sure way to make management less time-consuming, as systems not only operate faster and smoother but interoperate better between server platforms.

One company focused squarely on server optimization in the data center is Supermicro (www.supermicro.com), based in San Jose, Calif. This $300 million-plus company, which recently went public, has helped lead the charge for more advanced computing with optimized I/O server board products such as the 1U Twin and the new UIO (Universal I/O) line, which is available in a bare-bones package or with specific components installed, such as a networking or a SATA RAID 5/6 daughter card. Supermicro offers the daughter cards for its own main boards, or you can add your own, but the primary advantage is in scalability and performance for small to midsized enterprises that are expecting growth or want to finely control data center expansion.

"I have the simple belief that a lot of data centers need higher quality, better performance, and better optimization, which is why I started the company in Silicon Valley in 1993," says Charles Liang, Supermicro's CEO. "We have been a very successful company when it comes to high-performance servers, and we are first to market with many of our products."

Liang attributed this long-standing first-to-market reputation to the employees, who are hardworking and focused on quality and innovation as prime motivators. In 1996, the company introduced the first dual Intel Pentium Pro-based server board. In 2005, it was the first to introduce a line of SAS products. And, in 2006, it introduced an industry-first quad-core main board that uses the Intel Xeon 5300 processor. Supermicro designs all of its products in-house, with an expansion facility in Taiwan, instead of relying on the expertise of third-party hardware vendors.

Current Innovations

The most recent Supermicro product is the Universal I/O board, which allows admins to add expansion cards at will and still benefit from the existing expansion slots available in the server rack. The UIO is, at least in part, a response to how data centers have changed in the past few years, with capital budgets that require managers to look for ways to expand without making wholesale changes in architecture every year. Liang says another trend is in application optimization, due to an increased demand by business units for more and more power for mission-critical tools.

"Companies have become more and more aggressive about server costs, and this is especially true in the channel market [where companies serve as a solution provider to other companies]," says Liang. "There's now a price-cost and performance sensitivity in the server market; companies aren't just looking for the lowest price but for a provider who can demonstrate the best performance at a given price. Cost is not the most effective way to select a server, but it is more important to look for optimization and power efficiency. With Universal I/O, there is also more scalability, with three options for expansion in the 1U form factor and seven expansion options in the 2U form factor."

"UIO is more flexible than other server boards because it allows the data center manager to select the fastest controller they want," continues Liang. "Some customers need Fibre Channel, others need 10 Gigabit Ethernet, others want to have the expansion capability that our products provide. For them, maybe they don't need SAS right now or don't need 10 Gigabit Ethernet yet, so they have the option to decide later rather than having to replace the server board or change their architecture. It is very important for our customers and channel providers to have the different features and configuration of the board match their needs, so we have a very customizable solution."

"With a small company, the issue is that they do not have the same IT inventory in the data center for the fastest performance, but they still have the same needs for application optimization," notes Liang. "With our products, a smaller company does not need to requalify a new architecture, they can just expand on the one they have in place. They can start with the basic support they need with a base controller. Then they can add an SAS or IP or RAID 6 controller later on. There are no silicon parts to remove yourself and replace since the expansion cards snap into place on the Universal I/O product. We know that the PCI Express lanes in a server are very valuable, so they are still all available to you."

Yes, It's Possible

Liang says the one challenge with Supermicro's Universal I/O product is just explaining that it is possible. In the relatively complex server marketplace, it's often hard for customers to grasp that a server board could be so "plug-and-play" with expansion cards, especially when so many other vendors are only offering replacement boards when a company wants to change its architecture. Liang says that the company has to train its salespeople to explain in detail how the product works, the advantages, and the flexibility it produces. Currently, Supermicro offers about 15 expansion cards and expects to offer about 30 to 40 expansion cards by the end of the year, such as new SAS and IP controllers.

The company has also recently announced a new SuperBlade enclosure product that will support up to 10 dual-processor or quad-processor compute blades.

Supermicro is proving, with its long history of performance products and the new Universal I/O products, that server optimization is not only a boon for server admins but can provide the flexibility and scalability that data centers are demanding.

THREE QUESTIONS

Bringing IP SANs To The Enterprise

StoneFly Offers Flexibility To Meet Evolving Storage Requirements

by Darrell Dunn

A PIONEER OF INTERNET Protocol-based storage-area networks, StoneFly Networks (www.stonefly.com) has been building out a broad portfolio the past five years to meet a range of business requirements for low-cost, high-performance, and simple management of its storage networks.

"We saw early on the promise of IP SAN products in the market," says Jame Ervin, product manager for StoneFly. "We started with the idea of an iSCSI router that would convert direct-attached storage so that it could be seen over the IP network. Since then, we have built out a series of storage concentrators for customers who have different deployment considerations."

IP SANs enable the creation of block-level networks that use standard TCP/IP LANs and provide an alternative to direct-attached storage, Fibre Channel, and network-attached storage platforms. StoneFly offers modular storage concentrators ranging from 2 to 100TB, with redundant RAID controllers and SATA and SAS drive technology for mixed-use systems.

The StoneFusion Intelligent Network platform provides network management, storage provisioning, centralized volume management, data migration, and storage consolidation.

"What makes these particularly appealing to SMBs is they require no specialized expertise to install and are fully interoperable with leading storage arrays," Ervin says.

■ What are the biggest IT-related issues facing today's small to midsized enterprise?

Ervin: The first one I always hear from IT executives we engage with on a regular basis is simply trying to find adequate resources. Large corporations can throw an infinite number of people at a problem. Smaller companies have to find ways to integrate things as easily as possible because everyone on the IT staff is wearing a lot of different hats.

There is a big challenge for most small to medium organizations in trying to figure out how to adapt the technology they have to solve their business problems. There are new technologies coming out every day, and they usually have some new acronyms to learn.

Having someone who can help you evaluate these technologies, filter the choices, and help you map out a deployment effort that uses those resources effectively can make a big difference. Do you want to be on the VHS or Betamax side? You can't waste resources on a losing platform.

■ What should *Processor* readers know about your company's products?

Ervin: We really are focused on IP SAN solutions. We want to make it really easy for our customers to grow their storage as it becomes necessary by offering flexible platform options. A couple of years ago if someone had a terabyte of storage it was considered huge, but now you might use a terabyte for a movie at home.

We want to grow with you as your organization changes and as our products evolve, as well. And because we are a small to medium business ourselves, we really keep a focus on those customers because we understand the challenges.

■ What makes your company unique?

Ervin: Our commitment to being flexible in meeting your business needs. A lot of our competition has a singular vision of storage they want to push onto everyone else. You have to adopt that vision whether it fits with your organization and its goals or not, and you're asked to conform your business to their vision.

We like to think of ourselves more like Play-Doh, and our product can be molded to fit your need. We have a bit broader product line than many of our competitors so that our customers can find the platforms and technologies that meet their individual requirements.

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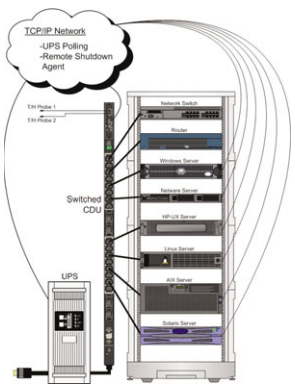

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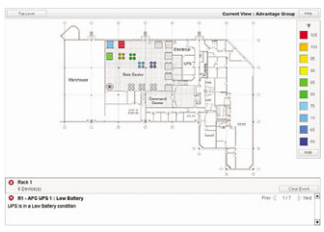

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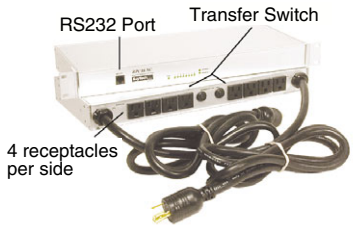

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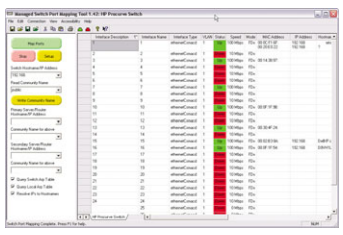

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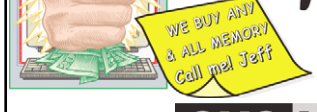

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